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An Address
ON
UNUSUAL SYMPTOMS DUE TO ENLARGEMENT OF THE PROSTATE.*

BY

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THIS address is not intended for genito-urinary specialists, or even for operating surgeons, but for those among you who are general practitioners, whose duty it is to see patients at the outset of their troubles and assume responsibility for their diagnosis. Further, what I have to say is entirely from the point of view of the general surgeon, for, though I have always been interested in genito-urinary disease, I have not devoted especial attention to this branch of practice.

I have always been alive to the importance of the problems of disease as they are presented by the "patients' complaints," and my responsibility as a teacher of medical students, who are most of them to become the practitioners of the future, has made me pay particular attention to this aspect of our work. Most of us must have recognized the difficulty of getting clinical knowledge from books, for the descriptions of diseases, as we read them, have been pieced together from many cases. Quite a limited experience of practice of any kind soon teaches how much actual "patients" differ from "cases." Similarly, experience has taught me that a whole variety of symptoms not obviously connected with the urinary system may depend on enlargement of the prostate, and it is to this aspect that I particularly wish to refer.

USUAL SYMPTOMS OF ENLARGED PROSTATE.

As I was putting together my notes it seemed to me that perhaps it would avoid misunderstanding if I enumerated quite briefly the "usual" sort of symptoms which bring patients suffering from enlargement of the prostate under the care of the surgeon. Of course, I fully realize how easy it may be for anyone, like myself, working principally in large hospitals to get ideas on disease which are different from those obtained in general practice. At the same time, practically all the cases are sent into hospital by the practitioners of the district in which I live, so that they represent the problems with which they have to deal.

At the outset I would like to emphasize the truth of the dictum laid down by Sir Henry Thompson, to the effect that enlargement of the prostate of such a degree as to give rise to symptoms demanding treatment does not occur before 50 years of age. It has been quite surprising to me, but it is none the less true, that in an experience of over thirty years I have never yet seen a case of ordinary enlargement of the prostate, that is, non-malignant, except in those over this age.

Now the usual prostatic symptoms can be arranged under one or other of the following heads:

Hesitation in starting and finishing the act of micturition.
Irritability and frequency, with dribbling.
Mostly nocturnal frequency.
Attacks of retention.
A culminating attack of complete retention.
Retention with overflow, and any combination of the above.

I do not doubt that there are other symptoms which will at once stamp the patient as suffering from urinary trouble, probably of prostatic origin, and those whose reputation particularly attracts urinary cases will often be consulted by people complaining of very early symptoms associated with prostatic enlargement, but these are less definite and are not always easy to assign to their proper cause.

UNUSUAL SYMPTOMS OF ENLARGED PROSTATE.

And now I want to draw attention to the *unusual* symptoms which I have promised to discuss.

Early in my career my attention was attracted to this matter by the case of a man whom I saw in consultation with his family doctor, because he was supposed to be suffering from gastric carcinoma.

This patient, a man aged 67, stated that he had usually been healthy, suffering only from occasional bilious attacks in which he would have vomiting perhaps for a day. Eighteen months before I saw him he had his first real stomach illness when he was laid up for several weeks; it was exactly similar to the attack for which I was consulted. At the same time he was found to be suffering from enlargement of the prostate. His doctor taught him to pass a catheter, but he soon gave that up and had to rise twice every night to micturate. Between that illness and the present one he considered himself perfectly well. About five months before the consultation he began to have pain in the stomach about two hours after every meal. The pain would continue until he was due to take the next meal, but more food always relieved the pain. It was situated about the pit of the stomach and extended upwards towards the chest. When the pain was bad he sometimes brought up a mouthful or more of food, but it was usually watery fluid, and he had only once brought up a little blood. These symptoms continued, and he had lost weight and strength. There had never been any difficulty in swallowing.

When seen the patient was found to be of big, strong build, but obviously not in good health and showing evidence of recent loss of flesh. Occasionally a little gurgling could be made out over the stomach area, but no mass was to be felt, and there was no evidence of gross dilatation nor was there any tender area. There was no fluid in the abdomen, and nothing abnormal could be made out per rectum. An oesophageal bougie easily entered the stomach, the contents showed free hydrochloric acid, and an absence of lactic acid. It was before the days when *x* rays were regularly used in gastric cases. The prostate was found to be definitely enlarged, and later his doctor drew off about 14 oz. of residual urine.

As a method of preliminary treatment the bladder was emptied by catheter night and morning. Subsequently the prostate was removed, and this accomplishment was followed by the complete disappearance of all the stomach symptoms.

For the purpose of operative treatment this man was admitted as a case of enlarged prostate to a general hospital, and it is interesting to read the notes made by the clerk entirely from the genito-urinary standpoint, for there is not one word about the stomach symptoms which first sent the patient to his doctor!

This experience occurred over twenty years ago, and in the intervening period I have frequently seen similar cases. A recent example is quite typical, and will serve as a further illustration.

One day I was making a brief visit to my wards accompanied only by the sister, a most experienced nurse whose diagnosis is rarely at fault. In passing one of the beds she asked me to look at a man, 62 years of age, who had been admitted as a case of malignant stomach, and whom she thought looked like it. He certainly appeared to be older than his years, and was white, haggard, and neglected. All his complaint was of a bad stomach, and he put his hands over the epigastrium as the seat of his trouble. I found that the following notes had been made by the house-surgeon:

"Patient admitted complaining of vomiting after meals for past twelve months; no pain; appetite good; loss of weight; bowels regular; no blood seen. *Examination:* Patient very wasted and looks ill. Abdomen retracted; no definite irregularity. No mass, but tenderness in epigastrium."

As I saw him the man showed signs of recent loss of weight, but I could find nothing on hastily examining the abdomen, and certainly there was no mass in the stomach region. I remarked to the sister that he looked like a prostatic case, and asked her to get the house-surgeon to investigate the patient with that possibility in view. Sure enough he found a very big prostate and residual urine measuring 23 oz. Subsequently the bladder was opened suprapubically and drained. Palpation of the gland suggested that it was probably malignant. This man got great temporary relief, and all his stomach symptoms at once disappeared.

At this stage I would like to draw attention to the value of bimanual examination as a means of detecting the presence of residual urine, when perhaps it is not convenient to test for the latter in the usual way. Of course, the patient must first pass as much urine as possible under the most comfortable circumstances, and I would remind you that few people can do justice to themselves when lying on their backs in bed. When as much urine as possible has been voided the bladder may not be felt distended either from above or from the rectum, but bimanually it may be felt to be as big as a cricket ball, or larger, indicating that it contains from 4 to, say, 10 oz. of residual urine.

Of course, these cases are for the most part sufficiently obvious when the circumstances have been sifted, but difficulties arise, either because patients disguise from themselves sometimes—and certainly from their medical attendant—the fact that there is any urinary abnormality, or because the interpretation which they themselves put upon their symptoms leads them to believe that any urinary

*Given before the Medical Society at Nottingham, December 5th, 1928.

difficulty is a secondary factor and not the real source of their troubles.

I am sure we have all recognized that the art of diagnosis is allied to the craft of the detective, and I hope you will not be surprised when I tell you that I am accustomed to recommend to my class as guides to diagnosis *The Adventures of Sherlock Holmes*, and a little book called *Aids to Scouting* by Baden-Powell.

Now the next case, whose history I obtained from the patient after he had been operated upon, appears consecutive and reasonable enough, but, as a matter of fact, when this patient consulted his medical man, and subsequently a physician, his mind was made up that the cause of his trouble was associated with some bronchial catarrh due to cold, and, on another occasion, to an increasing dyspepsia, and on neither occasion did he volunteer any information about his urinary difficulty. He was just the type of individual who had always been self-reliant and introspective, and it was he who made the diagnosis which he presented to his various medical attendants. Here is the full history, written by the patient himself, a man of 66, in the month of April.

"As near as I can remember it is about six years since I first noticed the change in regard to the retaining of my urine; sometimes I would have to get up twice during the night; then in the morning, after using the chamber, I had to repeat a similar action when I got downstairs. Of course, the same thing was taking place during the day also. I once consulted a doctor, who informed me that it was caused by the neck of the bladder growing weak, which was a natural consequence with people who were getting somewhat aged. Previous to six years ago I had the power to hold my urine for a very long time, but I have felt it diminishing more and more every year since. Nevertheless, my health was excellent up till last December, although I was put to much trouble and inconvenience by the complaint. From December last I could feel my health getting bad. I was then compelled to get up five and six times a night to pass urine, and this went on increasing week after week till I am sure I was doing it into the teens of times a night and day also. The desire used to spring upon me very suddenly and forcibly in such a manner that when it wakened me I felt quite startled and alarmed. Up to six months ago, although I had to micturate often, I passed the urine somewhat freely. It was only after I felt some substance making itself evident in the rectum that I commenced to dribble. The substance or lump never protruded much beyond the anus, and always on the right side, and the end of it felt somewhat hard, rounded, and smooth, but it always disappeared after the pressure due to straining was removed. During this time the anus was very much relaxed and the part round about it was extremely soft. Numerous times I have gone into the lavatory with the feeling to use the urinal only, but after I have stood a while I had to make great haste to get into a w.c. because I had lost the power to retain the excrement. For a considerable time before the operation I used to pass the excrement before I passed the urine, which I did not do when these parts were working all right. For some time before you removed the cause of my annoyance, if I put my hands into hot or cold water there came a strong and immediate desire to micturate, which I had to attend to at once if I wanted to keep my shirt dry. A short time before I was sent in to you I caught a severe cold—I tried some patent medicines to cure it, but did not receive much benefit; also had two bottles from our doctor. On March 6th I was in Newcastle and thought it was time to consult a physician about my illness. I was asked a number of questions and requested to take off my coats. The physician then sounded me by tapping my back, and he also applied his stethoscope and told me to inhale slowly—my chest was treated in a similar manner, after which I was asked to lie down on a bench on my chest, when my back was subjected to the same ordeal as before; then over on to my back to undergo the like process.

"I informed him about passing my urine frequently, and about something making itself felt in my rectum. I was told to bend forward and press down, which I did as much as I was able. He informed me that there was not much the matter with me; I was suffering from a little bronchial catarrh, and that I would soon be better. I obtained a prescription which I got made up in Newcastle sufficient to serve two weeks. To my great surprise every day my health commenced to grow worse and worse; my appetite for food had almost gone; my breath was growing offensive; I then got a cough which I thought came from my stomach; the saliva was frothy and had a disagreeable metallic taste—I could not keep my mouth clear of it. I was so ill that I had to send for my home doctor. After he had examined me he came to the conclusion that I was suffering from catarrh of the stomach—at this time I had a horribly dirty tongue. After I had taken two and a half bottles of medicine, which had not done my stomach the least degree of good, and had lost all desire for food—in fact, if I thought about it it created a nauseous feeling, consequently I was getting leaner every day and the number of times I passed urine day and night went on increasing. I made a great mistake in not informing the doctor about the urinary trouble from which I was suffering, but when I told him about it he diagnosed my complaint at once, and told me that my stomach could not possibly get better if I did not get this enlarged gland removed; hence he communicated with you, and as soon as he obtained a suitable reply I was sent on to you."

In another case I was asked to see a farmer 63 years of age as a case of abdominal malignant disease.

When I first met the patient he at once told me that his trouble was indigestion, and he gave a history that he had been perfectly healthy until four weeks previously, when he got cold which caused pain in the left side of the back. The pain soon got well, but it was followed by a fiery heat of the stomach for which he drank a tremendous lot of cold water. After this he began to lose his appetite and felt very ill. There was considerable loss of weight, but this he attributed to the fact that he had not been able to take food. I found the patient a very fresh-looking man, but with a dry red tongue and sourish breath. When he presented his abdomen for examination there was an obvious swelling in the lower part which was the over-distended bladder reaching nearly to the umbilicus. Up to this point he had said nothing about his water, and even on interrogation he would not admit to any urinary trouble until the onset of the present illness. He then found that he had to pass urine very frequently and at once, but for this he blamed the large amount of water which he had taken. Latterly there had been frequent desire to micturate with difficulty in getting the urine away. Per rectum the prostate was found to be very large and was pushed down by the distended bladder. The enlargement was dealt with by the suprapubic operation; the patient made a splendid recovery, and is alive and well ten years afterwards.

In another case of the same kind the man, also a farmer, had been in failing health for some time, but having a great dread of doctors, and especially surgeons, he refused to consult his medical man until about a fortnight previously, when he sent for some medicine to relieve vomiting. When my friend called he found the patient in bed, looking very ill and complaining only of his stomach and vomiting. On examination the bladder was greatly distended; the urine contained albumin, and rectal examination revealed an enlarged prostate. In this case the trouble had evidently been going on insidiously for a very long time and the kidneys were already much involved. The man was relieved by suprapubic cystostomy, but he did not live long and was never sufficiently well for the radical operation for removal of the prostate to be performed.

Another man, 62 years of age, who followed the calling of a commercial traveller, was well aware that his urinary apparatus was not in good working order, but it was only when he began to suffer from nausea and a distaste for food that he sought surgical advice, and he did not connect these symptoms in any way with his old urinary trouble. As a matter of fact the whole of the mischief was due to enlarged prostate, for he made a very satisfactory recovery after a two-stage operation, and now, eleven years afterwards, he is in perfect health and able to carry out his duties as well as at any time during his life.

Quite often the presence of a distended bladder has led to difficulty in diagnosis. A very able practitioner of whom I have the warmest recollection, for he acted as a mentor in my earliest days, and had sufficient confidence to entrust me with surgical work at the very outset of my career, was himself misled in dealing with one of his old patients, a man aged 72, who had been complaining for some time of trouble with his bladder; the real reason for concern, however, was the advent of stomach symptoms with some failure in his cardiac apparatus. In writing about the patient my friend mentioned the symptoms and then concluded, "But what I want to know is what is this swelling in the middle line which feels so soft and elastic." As a matter of fact it was a big distended bladder containing 36 oz. of residual urine. In this case also the prostate was removed and the patient made a satisfactory recovery.

Among my treasured possessions is a letter which was sent to one of our surgeons by a well-known physician. I merely mention the standing of this gentleman to show you how easy it is for those trained in clinical observation to be occasionally misled when they are confronted with some condition the like of which is not perhaps frequently brought to their notice. In this case the patient was suffering from nothing worse than a distended bladder, but, as you will see, it was mistaken at first for an obscure tumour. The letter reads as follows:

"Dear Mr. ——, "July 19th, 1902.

"This gentleman came to see me to-day for the first time. He complains of vomiting without pain; quantity of vomit not large. I find a solid, movable growth in the abdomen which curiously resembles in general form and site a uterus pregnant about 5½ months. I have sent him to you for you to consider the advisability of exploring the abdomen. There is a soft systolic bruit at the apex; but the second sound at the pulmonary area is not accented, and the heart action is fairly regular.

"The urine is alkaline (probably from taking 'Carlsbad salts') and contains a very distinct trace of albumin; no sugar.

"Yours very truly."

Forgive me if I allude to another case illustrative of this same point, although, as a matter of fact, the urinary obstruction in this particular example was the result of stricture and not an enlarged prostate.

A man, aged 66, was sent to me by a very discerning doctor friend with a note to this effect: "Do you mind seeing this case for me, an abdominal tumour, not a spleen." The patient only complained of the "lump" in the abdomen. He would not admit that he had any overflow, and certainly his clothes were not in the least damp. He stated that his trouble had commenced four years previously with inflammation of the bladder, but that since then he had not had trouble until he noticed the lump which sent him to his doctor for advice. Fifty years before he had suffered from gonorrhoea. A further examination disclosed a very tight stricture in the deep urethra, and the "tumour" was nothing more than the chronically over-distended bladder.

Intestinal symptoms occasionally overshadow those of obvious urinary origin, as in the case of a man who was sent up with a note stating that he had a history of possible intestinal growth, but that nothing could be felt either on abdominal palpation or rectal examination. None the less the presence of an enlarged prostate had been noted. The fact was that the uncomfortable colic from which this man suffered was simply due to the effects of his enlarged prostate with residual urine.

In a case which I have particular reasons for remembering the patient was a rather older man of 70 years, whose symptoms were entirely rectal. Ineffectual straining and tenesmus, with some prolapse of the mucous membrane, difficulty in voiding faeces, and occasional bleeding, certainly suggested that the cause of his trouble would turn out to be a rectal growth. As a matter of fact, he only suffered from an unusual degree of enlargement of the prostate, and he was completely cured of his rectal discomfort by its removal.

Quite recently I was consulted by a retired sea-captain, a bluff old veteran of 77 years, who came complaining of flatulence and discomfort in the abdomen, and the desire to void wind with pressure; also of some frequency of micturition. He complained that he was always thirsty and had a very dry mouth. In writing about this patient his doctor mentioned that he had a large, round swelling in the abdomen which puzzled him; he stated that it was tense, as if containing fluid, and yet the patient passed water fairly well and had no dribbling. This man turned out to have a distended bladder containing 55 oz. of residual urine. The latter was of low specific gravity and the urea was diminished, but as a result of a two-stage operation he made a satisfactory, though rather tedious, recovery.

Rectal symptoms are sometimes present when the prostatic enlargement is not very marked, and only recently I was rather puzzled by a patient, 60 years of age, who complained of a constant desire to empty the bowel with ineffectual evacuation. In this case the prostate was enlarged and nodular, and, although I feared malignancy, the condition improved very much as the result of treatment, but some months later there was a recurrence with the advent of stomach trouble suggestive of growth, as in the cases I quoted to you at the outset.

A very good example of a patient's misinterpretation of his own symptoms recently came under my observation.

The patient was a man of 54, who assisted his wife in the conduct of a beerhouse. For two or three years he had suffered from discomfort in the abdomen. During this time he was accustomed to drink freely, and he was inclined to blame this over-indulgence for his troubles. Finally he consulted his doctor, who, suspecting stomach trouble, looked at the tongue. This was dirty and thickly coated, but also presented a very obvious papilloma. The man was at once told of the potential danger of this growth, and was sent to hospital for advice as to its treatment. While conducting a leisurely examination for teaching purposes, and with the help of a student, we noticed a very urinous odour. This prompted a more general examination, which at once disclosed a distended bladder with overflow from enlargement of the prostate. When questioned the man admitted that he had been disturbed four or five times each night, but again he blamed his addiction to beer. Latterly his urine had run away without control, and this had caused him to become alarmed.

One of the most important pitfalls of which we must be constantly aware is the class of case in which the patient blames some obvious condition like a hernia or hydrocele for a general failure of health which is really dependent on disorders the result of an enlarged prostate. This is a matter to which I have previously referred,[1] and at that time I ventured to suggest an aphorism which has proved so useful that I would like to recommend it to your notice. It is as follows: "The occurrence of unaccustomed symptoms in chronic conditions is suggestive of some new disease." The following is a case in point.

A gentleman, aged 67, whom I had previously seen on account of some thyroid enlargement, came complaining of a swelling in the right inguinal region, which he had noticed for eight or nine months. He said that latterly it had caused him some pain and discomfort in the lower abdomen and especially after supper. On examination I found an ordinary oblique inguinal hernia. Incidentally, during the course of the examination, the patient mentioned that for a year or more he had noticed increasing trouble with his water—frequency in the mornings, dribbling, and some difficulty in getting the urine away. His appetite and general condition appeared to be unaffected. On rectal examination the prostate was found to be big, rounded, and smooth, certainly twice the normal size, and there was residual urine. In this case prostatectomy was carried out with complete relief of the uncomfortable symptoms which the patient had attributed to his hernia.

The etiology of some of these more general symptoms is quite interesting. Probably they are for the most part due to a certain degree of renal insufficiency and are really an evidence of latent uraemia. Their consideration brings us to the question of so-called "back-pressure," which is so commonly spoken of in connexion with obstruction of the lower urinary passages. It is, I think, an unfortunate expression, because it suggests, at least to my mind—and I have heard it mentioned by others—that the secreted urine goes on accumulating at its usual rate and causes such great pressure in the bladder and kidneys as to give rise to the symptoms which we associate with latent uraemia. As a matter of fact, I hold that such a purely mechanical explanation is untenable, and I believe that what really happens presupposes an amount of intelligence, so to speak, on the part of the renal secretory apparatus. When, for instance, the kidneys discern that the urine does not escape in the ordinary way, there is a holding up, so to speak, of the work of the epithelium, secretion diminishes, and in consequence there is an accumulation of noxious products in the blood. Both these matters would seem to me to be within the scope of easy experimental inquiry, and I commend it to someone with leisure to carry out what would prove, I am sure, a most interesting investigation.

Malignant Prostate.

In connexion with malignant prostate there may be a variety of symptoms which may prove very puzzling. Quite usually they are not directly connected with the urinary organs, not only in the first instance, but even until comparatively late in the development of the malignant disease. Some of the special features to which I would particularly draw attention are complaints of "sciatica" or "lumbago" or "oedema" of one or other lower limb or of the lower part of the abdominal wall, or "enlargement of the groin glands." Pain in the perineum is more ordinary and more suggestive of genito-urinary trouble; it may be the only complaint for a long time, and it may be present when urinary symptoms are entirely absent. It is disconcerting to find to what an advanced degree malignant disease of the prostate may attain before it gives rise to any symptoms whatever. The following is a case about which I was greatly distressed.

A distinguished man whom I saw quite recently was, in his 78th year, in such excellent health that he surprised his friends with his superabundant energy. Only six weeks before I saw him he began to have some day and night frequency of micturition. There was no pain, never any blood in the urine, and at the end of that time he looked in his usual robust health. On rectal examination I was shocked to find a large, hard, infiltrating mass arising in the prostate and extending up into the base of the bladder. On bimanual examination it was obvious that there was a good deal of residual urine, and after this was withdrawn the large mass felt per rectum could be determined bimanually, so great was its size.

In another case what was dubbed "sciatica" was the principal symptom.

The patient was 69 years of age, and, on going into his history, he complained that for several months he had been troubled with wind in the bowels and difficulty in getting them open. Closer inquiry showed that the pain which he called sciatica was really down the inner side of the leg, but it was bad enough to prevent sleep. After examination I wrote to his doctor as follows:

"I have just seen your patient and I find him a most interesting case. I have very little doubt that he has a malignant growth of the prostate—not of the rectum as I was inclined to think from his history. In the situation of the prostate you will find a hard, nodular mass spreading out to the pelvic wall on either side and closely adherent to the bone. You will also notice that the pain in the leg is down the inner side in the distribution of the obturator and not in the sciatic region. I do not quite understand why he should have so much trouble with the bowels, but he admits that it is mostly about the region of the sphincter, which may explain his difficulty. I am sorry to say that it is not a case in which removal can be thought of, and we will have to rely on medicine for his relief."

It is interesting to note that this patient died just about a year after the time that I saw him, and it was only for

the last two months of his life that he had to depend upon the catheter. The pain became very severe, he gradually got weaker, and his end was hastened by some form of oesophageal obstruction.

So-called "lumbago" as well as sciatica appears to be very common at the outset of malignant disease of the prostate, and would more than ever indicate the well-known rule that in both these conditions a rectal examination is essential. Of course, in dealing with the industrial class, an injury is often blamed, and in one such case careful *x*-ray examinations of the pelvis had been made in search of an old fracture, but an ordinary rectal examination disclosed a large mass of growth originating in the prostatic area.

Oedema, with swelling of one of the lower limbs, has several times directed my attention to the prostate, malignancy being suspected and usually found.

In one such case, in a man of 64, the only complaint was of swelling of the left leg, which he had noticed for about ten weeks before the time of his visit; there had not been much pain. On inquiry it turned out that a year previously he had called in his doctor for what was said to be rheumatism in both feet and one hand. After this illness he was left weak in the bladder and had to be quick in getting to a convenience. At this stage in the recital of his history he said that he blamed the water trouble for bringing on the swelling of the leg, and I have a note in my book, between brackets, suggesting that a malignant prostate would be found. He certainly looked a seedy individual, prematurely old and with marked loss of flesh. The affected leg was twice the size of its fellow from lymphatic oedema, and there was a considerable amount of oedema about the genitals and in both groins, while enlarged hard glands were felt in the latter situations. There was no evidence of distension of the bladder, but on rectal examination the prostate was found to be enlarged, hard, nodular, and fixed, and there could be no doubt as to its malignant nature.

The following is a somewhat similar case.

A man, aged 76, complained of oedema of the left leg, which he attributed to a blow that he had received three months previously. The leg was found to be almost solid below the knee, and the groin glands on both sides were enlarged and hard. On going further into his history he admitted that for two years there had been some frequency of micturition and that it had recently become very bad by day as well as by night. In this case the bladder was almost up to the umbilicus, and the prostate was slightly enlarged, hard, nodular, and fixed.

In the last two cases the enlargement of the groin glands had not been noticed by the patient and had given rise to no trouble, but it was otherwise in the following case.

A man, aged 70, was sent to me one April at the suggestion of a consulting physician with regard to the advisability of the removal of a mass of glands in the right groin. He gave a history that in the previous October he first noticed swelling of the left leg. For that he had rested in bed for a month as the condition was said to be due to a thrombosis of the internal saphenous. At the time of his visit he told me that he had no urinary trouble, though he did admit that he passed water rather slowly, which he attributed to some weakness of the bladder depending on his age. He did not think that he had lost weight, and certainly looked the big, strong, healthy man that we had been accustomed to see about for many years. There was some oedema and slight discoloration in the region of the right groin. The most prominent gland was of walnut size in the vertical set of femoral lymphatics, but there was a less defined enlargement of the horizontal set, and in the pelvis, above Poupart's ligament, a mass could be felt extending along the brim. On rectal examination the prostate was found to be definitely malignant and was invading the region of the right seminal vesicle. At that time there was no sign of more distant dissemination, but the patient eventually died with multiple secondary deposits all over, though growth in the liver was the most prominent feature.

Recently a public man, who was well known for his municipal activities, was sent to consult me by his doctor, who had discovered him to be suffering from a malignant prostate. The history in this case is very interesting as bearing on this question.

This patient, who was 66 years of age, stated that until two years previously the bowels had been absolutely regular. About that time he began to take grape-fruit, and noticed the onset of constipation and that sometimes the act of defaecation hurt the passage. This trouble, although it only came on at intervals, got steadily worse, and sometimes he had very severe pain lasting for an hour or more after evacuation. About three months previously he began to notice a new pain about the rectum, this time quite independent of evacuation. It came on in attacks and disappeared after a rest. If he could void flatus he got some relief, and was also helped by medical treatment. All this time there was no complaint whatever of urinary symptoms, and even on cross-questioning the patient would not admit that there had been the slightest trouble; the most that could be elucidated was that sometimes he had to get up once during the night, but this only if he had taken a good deal of liquid. He looked absolutely fit and well, and there were no external signs whatever, but on examination the prostate was found to be embedded in growth which was excessively hard and surrounded the lower end of the rectum, leaving a rigid channel which just admitted a finger. It was as if the base of the bladder and the rectum had been embedded in plaster-of-Paris.

Sometimes, and I think more usually, these patients do complain of pain and soreness in the perineum, as in the following case.

A big, handsome man, a farmer, who appeared to be in the pink of condition, gave a history that in March he began to have pain and soreness in the perineum, which troubled him when he attempted to get over fences. Later on it made him unable to ride round his farm. Soon afterwards he began to be troubled with frequent micturition and had to get up two or three times every night. The pain was then worse at night, and he had to lie with his legs apart to get some ease. When I saw him in August he looked quite well, but he was not so vigorous as formerly, and he had to rest at times, instead of pursuing his life of strenuous activity. There was no loss of weight, and he took his food well. The general and external examination was quite negative, but rectal examination disclosed a large, hard, nodular prostate with infiltration and fixation of the whole of the pelvic floor. Eventually this patient had such great urinary difficulty that a suprapubic drain had to be inserted.

In a man of 53 the first symptoms of malignant prostate were stabbing pains down the outer side of the thighs. Soon after this he had an illness following a rigor, and this was succeeded by pain in the perineum and a frequent desire to empty the rectum. Evacuation gave him some little relief, but when I saw him some months afterwards there were no urinary symptoms, in spite of the fact that his prostate was most definitely the source of his trouble.

In some few cases even distant dissemination is present before patients have any symptoms to direct attention to the urinary organs, and I have twice seen patients with secondary malignant glands in the left posterior triangle of the neck who were unaware that the urinary organs were the source of their troubles.

Management of Prostatic Cases.

I will now deal with one or two points of considerable interest in connexion with the "management" of the prostatic case. That old word has always appealed to me, and it seems to epitomize our duty with regard to this particular sort of case very well indeed. One of the most difficult problems for us all is to decide when an operation should be advised. Personally I have no hesitation in saying that I much prefer to deal with patients who have the most trouble, for I have usually found that they have done better than others, and further that they have appreciated the benefits of surgical treatment much more than those patients who have not suffered very much before operation was carried out.

At the outset I would like to emphasize very strongly that the success of the operation for removal of the prostate depends entirely on the relation of the symptoms to the enlargement of the gland, and, if I may put it so, only those patients who suffer because they have an enlarged prostate will be cured by its removal! If operation is performed at an early stage there is a risk of removing the prostate when, as a matter of fact, the symptoms may be due to some other commencing disease. I have, I think, indicated sufficiently the difficulties connected with the very early cases, and I want to tell you the remarkable history of a patient whom I was asked to see by a very alert doctor friend at the time when prostatic surgery was looming large as a result of the pioneer work of Freyer.

The patient, who was suffering from his first attack of retention of urine, was a healthy man, in good general condition. The urine was absolutely normal, and the prostate was only slightly enlarged. As it was his first attack I deemed it wiser to see what could be done by the regular use of the catheter. At that time I only knew that the treatment advised had been effective, and that the patient made a satisfactory recovery; but fifteen years later I was asked to see this same man again. He was then 84 years of age, and he told me that after his previous illness he made a complete recovery, and was very active and well until two years before, when he began to be troubled with some urinary frequency at night-time. These symptoms culminated in an attack of retention which could only be relieved by the use of a silver catheter. The patient looked in very good condition for his years, though the prostate was very large. Again

he made a complete recovery as the result of catheterization, but, of course, the nocturnal frequency continued. Nevertheless, he was so comfortable and so active that he would not agree to any operative intervention.

Many difficulties arise at the other end of the scale—that is to say, when the patient is extremely ill as the result of long-continued urinary obstruction, and it becomes a question as to whether the risks and discomforts of an operation should be urged. In this connexion the story of an old man of 77 who came under my observation some time ago is very instructive. This patient stated that for some years he had suffered from nocturnal frequency with inability to empty the bladder and consequent discomfort. This was followed by a general failure of health, with swelling of the legs, and culminated in an attack of retention which demanded the catheter for its relief. It was at this stage that he was sent to me for an opinion with regard to the advisability of operation. I found a very ill-looking old man with an irregular heart, emphysematous lungs, considerable dyspnoea, and oedema of both legs. The distended bladder was like an abdominal tumour and the prostate was enlarged and suspiciously hard. After examination I wrote to his doctor as follows:

"I am very much obliged to you for sending Mr. M. to see me. Obviously this is not a case for radical operation, and in any event the patient has not very long to live. I strongly suspect that the prostate is malignant, although I confess that the physical signs are not sufficiently definite to entitle one to give a decided opinion on this point.

"I have urged him to allow you to pass a catheter. I would suggest that the instrument should be used some time during the evening, and that you should draw off about two-thirds of the urine. Probably this will give him a much better night, but if it does not do so then it is not worth while persevering with this plan. If I am wrong, and he continues to live after a month or so, then I should be willing to put in a suprapubic drain through a trocar and cannula, but I do not urge this plan as it is attended with considerable risk in one so ill, and I do not care to raise false hopes.

"Some day be sure to let me know, first, if drawing off the urine as I suggest does give him a better night, and second, the date and circumstances of his death.

"By the by, he was extremely anxious to have some medicine, and I think that tincture of digitalis in 15-minim doses thrice daily would probably do some good."

You will understand my surprise when I learned that some five months afterwards this man was so much improved that he was able to resume work on his farm, and had been seen by his doctor on top of a haystack. As a matter of fact, he lived in very good health, and was able to work regularly, for three more years, but at the end of this period he began to fail, and died at 81 and 9 months, without any evidence of urinary infection, in spite of the fact that the catheter had been passed for him by his farmer son some thousands of times.

Operative details are outside the scope of this address, but to make my review complete I would just like to say that I have come to believe that, for the majority of these cases, the operation in two stages is by far the best. I would put it this way: that though I have very often had to regret that I essayed the one-stage operation, I have never regretted the adoption of the two-stage plan, although I quite admit that possibly some of the cases dealt with by two operations might have been successfully tided over the ordeal by one. I speak of two-stage "operations" simply because the circumstances in which I work have taught me that it is much better to make a suprapubic cystotomy rather than endeavour to have preliminary catheter drainage carried out. The latter plan is unsatisfactory with overworked wards and constantly changing house-surgeons and assistants, who never have an opportunity of becoming familiar with the difficulties that may be encountered. The first stage may be simply a suprapubic puncture, using the Morson trocar, but there again I feel satisfied that freer drainage is better, and the results superior if a suprapubic opening of the bladder is made. As a rule this first stage is carried out under general anaesthesia, unless, indeed, the patients are extremely ill, or of the thin and wasted type. The time between the stages varies very much, depending upon the progress of the patient. Usually the interval is not less than two weeks, and, in fact, on the rare occasions when I have felt it safe to intervene at a lesser interval, then, I think, without a doubt the operation might have been conducted by the one-stage method. Very often three or four weeks are allowed to elapse, but there is no rule as to the time, and the surgeon must attend on Nature, since it is foolish to intervene as long as the patient is improving, and it is unwise not to take the full advantage of this preliminary relief to the kidneys. The decision as to when the patient is sufficiently well for the second stage does not depend on chemical tests alone, but is mainly judged clinically, and I do not intervene until the patient is cheerful, is sleeping well, has a good appetite with a clean tongue, and presents a thoroughly healthy granulating wound. All these features must be satisfactory or the result is likely to be disappointing. It is in cases in which there is some doubt with regard to the clinical evidence that the examination of the blood urea may be so helpful.

Mortality of Prostatectomy.

For quite a long time I have been accustomed to hear uninformed people rail at the mortality of operations for removal of the prostate, and I have frequently been filled with a sense of shame to hear the opinion expressed that the general mortality in hospitals is something approaching 50 per cent. This is a gross misstatement of the true state of affairs, certainly at the present day. In my own series of cases, which includes the period during which I was trying to learn the technique and the management of the operation, my over-all mortality (that is to say, taking the two-stage with the one-stage operations) was 12 per cent.; for the one-stage operations alone the mortality works out at 19 per cent., and for the two-stage operations just 10 per cent. Most of these operations have been performed in our general hospital, but in keeping the figures I make no distinction between private and public hospital work, and the figures which I have given include the total number of cases, wherever the operation has been conducted. The mortality is steadily diminishing, and is now in the neighbourhood of 5 per cent. This approaches the wonderful figures which were obtained by Freyer, who was able to refer to a mortality of only 3 per cent. in one large series of cases, and those of Young, who in 450 cases had a mortality of just 3.75 per cent.

It is probably those who are so sceptical in regard to the mortality of prostatectomy who speak so scathingly about its advantages. Happily I have been in practice sufficiently long to have been a witness to the utter misery of so many of the victims of prostatic hypertrophy in the old days before the radical operation could be successfully employed; I am therefore able to appreciate the enormous advantages of the methods which are now commonly used. Of course, the period for which these patients enjoy the advantages of the operation is a poor way of assessing the benefits conferred, because in elderly men who require operative treatment the normal expectation of life cannot be long. For instance, in one series of my own patients the average age was 65 years, the youngest being 54, and the oldest 84. But the advantages conferred in some of these cases are incalculable. The following is one of the most striking examples with which I am familiar.

The patient was an old man—particularly old for his age—of 68, who for twelve months had been greatly troubled with nocturnal frequency. The number of times he had to get up gradually increased until he was disturbed not less than a dozen times each night. He was also greatly distressed with frequency during the day, and was only able to pass a very little urine at a time, and that without any force. To add to his troubles he had a severe attack of cystitis, and this was little improved by the irrigation of the bladder which was conscientiously carried out by his doctor. He never suffered from retention. Perhaps this was unfortunate, because quite often the attack of retention which precipitates active treatment is really an intervention of providence which demands that relief which might otherwise be unduly delayed. A mere recital of this man's symptoms can give no idea of the misery of the situation. In the twelve months during which he had suffered his condition had deteriorated so much that he had become a miserable, dirty old man, who neglected himself and his surroundings in a painful way. His condition had made him decrepit and bordering on simplicity, and, as he was a bachelor who lived in lodgings, his relatives were seriously embarrassed because it was found so difficult to get him rooms on account of his dirty habits, soiled beds, etc. Without much prospect, therefore, an operation was undertaken in the hope of so far restoring his condition that he would at least be able to look after himself and cease to be an

annoyance to those about him. The operation was carried out in two stages, and after a rather prolonged convalescence he eventually made a very good recovery. His gain in self-respect was extraordinary, and it was a remarkable thing to see this patient some months afterwards, nicely dressed, with white spats and a smart tie, and an undoubted concern for female regard. This happy state continued until four years afterwards, when he died of some condition unassociated with his prostatic troubles, but the details of which I have never been able to ascertain.

The after-history of very many cases is similar, and I merely select a few at random, as I know that many of you, from individual experience, will be able to supply many telling examples. The following is a very striking case.

A man of 60, a hard-working, conscientious artisan, whose symptoms had extended over some years, had evidently suffered so much from renal disability that his working capacity was seriously impaired. The operation had to be carried out in two stages, and his convalescence was attended with considerable anxiety because of symptoms of latent uraemia, but he finally made an excellent recovery, and now, thirteen years afterwards, is fit and well, happy that he can continue his laborious toil as a ship's plater, and willing to carry on in spite of his 73 years, as long as he can find employment.

Another man of the same age had suffered for ten years from urinary trouble, which had increased so much as to interfere very seriously with his ordinary avocation as a commercial traveller. He was very ill, and five weeks had to elapse between the primary operation and the removal of the prostate, and even after that his convalescence was long and tedious, and for a time the prognosis appeared doubtful. However, after a few months his health was restored, and now, thirteen years later, at 73 years of age, he writes me that he is as well as he has ever been in his life, and has recently undertaken renewed responsibility on behalf of his firm.

Another patient, whose history I have already detailed, is so vigorous fourteen years later that at the age of 80 he is still able to walk ten miles without undue fatigue, and has travelled over a large part of the Continent since his operation.

The oldest patient on whom I have ever carried out prostatectomy was 84 years of age and had suffered for long from urinary trouble. The operation was in two stages, and he made an excellent recovery. Unhappily his illness proved so severe a tax on his wife that she succumbed to what I believe was simply the undue exertion associated with her devoted attention to the old gentleman. After his own recovery he was able to take long walks every day, and during the war he went back to his business, from which he had previously retired, and put in long days behind a shop counter. Finally, at 93, the lamp went out, having flickered for some few months, but without any definite cause, the end being like the wearing out of the machinery of life's needful little ways.

Numberless other cases could be quoted, and it is quite usual for patients to speak of "a new lease of life," "a complete restoration to health," and so on.

In some few cases the results have been brilliant in spite of the most unpromising outlook, and I am reminded of a poor fellow who lived in lodgings and who was suffering from diabetes, which for a long time deterred me from attempting the relief which prostatectomy alone offered. He was in such misery from his prostatic condition that he was willing to run any risk, and I am glad to be able to say that the operation was followed by an excellent recovery, which he greatly appreciated.

Sometimes, contrary to all canons, we carry out operations which appear to be contraindicated, and I have in mind two such cases. In both, operation was refused by surgeons who have taken a particular interest in genito-urinary disease. In one case the patient had been condemned to a permanent suprapubic drainage, but at the end of eighteen months he was so dissatisfied that he was willing to undergo any risk, and he made a very satisfactory recovery, being alive and well six years later at the age of 80. Another patient who was refused operation had reached the end of his endurance, and here again, although the circumstances appeared to weigh heavily against his recovery, he did excellently, and is alive and well years afterwards, and classed among my most grateful patients.

REFERENCE.

[1] The Importance of New Symptoms in Old-standing Disease, *Clinical Journal*, June, 1915.

RADIUM AND ITS ACTION.*

BY

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(From the Pharmacological Laboratory, Cambridge.)

M. BECQUEREL in 1896 noticed that uranium salts affected a photographic plate through an opaque medium, and a few years later similar effects were described for thorium, polonium, and radium. All these metals emit three varieties of rays in different proportions, which are constant for each metal. Radium salts are, however, by far the most radio-active substances known, and have in recent years assumed a great importance in medicine. Indeed, the only practical application of radium at the present time is in medicine, and in this communication radium only will be considered.

Source.

In the early days radium was prepared in Austria from local ores and in France from Portuguese ores; later it was extracted in the United States, and now it is obtained practically entirely from the Belgian Congo. The ores from which it is extracted may be classified as follows:

(1) Pitchblende, an impure uranium oxide found largely in the Belgian Congo. It contains uranium, lead, silica, iron ore, and selenium. The British Radium Corporation deal with pitchblende at Trentwith in Cornwall, but they have extracted probably not more than 10 grams.

(2) Carnotite is a potassium uranyl vanadate, and is obtained from Colorado and Utah.

(3) Autunite or uranite is a calcium uranium phosphate containing lead, and is found mainly in Portugal and Australia.

(4) Betaphite found with mesothorium in Madagascar.

The history of the commercial production of radium is instructive and may be said to have passed through three phases. The first was that of the Austrian monopoly, during which radium was prepared mainly from the pitchblende of Joachimstal in Austria, and to a limited extent from the uranite of Portugal. The price during this phase fluctuated greatly. In 1905 it was marketed at from £5 to £10 per mg.; in 1909–10 at £15 to £27; and in 1912–14 at £36 per mg. The mines in the United States of America were now, however, competing, and as a result of this the price dropped in 1915 to £32 per mg., and in 1916–22 from £24 to £21. At this period the mines in the Belgian Congo were producing and made their presence felt, so that in 1923 the price further dropped to £14, and it now stands at from £10 to £12 per mg. When the mines in the Belgian Congo were in full working the American plant was shut down, perhaps because they could not compete economically with the richer Belgian ores and cheaper labour, though American authorities have stated that the reason was that as much radium had been produced as was needed. Before the Belgians operated, Europe had produced perhaps 60 grams and the United States 160 grams. If we place the total radium in the world at 320 grams we know that America possesses half or more than half of this amount. In 1923 the hospitals in the United States possessed 120 grams.

At the present time the Belgians hold the economic monopoly of radium production. In 1923 their plant produced 4 grams a month, and to the end of 1924 had produced 110 grams. But their sales did not equal their production, since in 1924 they sold only 22 grams of radium, which suggests that either their works were slowing down or they were accumulating stocks. It is necessary to appreciate these conditions in order to be clear that plenty of radium is available to meet all urgent demands provided that the price is forthcoming; it should also be remembered that the radium once produced lasts practically for all time.

The British Government has a Radium Committee now sitting to search for new radium fields in the British Empire, and within the next few years we may confidently anticipate the working of new mines, which, by competition, must inevitably lead to some reduction in price.

* Abstract of a lecture given in Cambridge.

Physical Properties.

The action of radium depends on its physical properties, and these must be referred to briefly. The modern view of the atom is that it is composed of a nucleus carrying a positive charge around which the outer electrons are distributed; these electrons are in a state of constant motion and each carries a negative charge. In a neutral atom the electrons must carry a total charge equal to the charge of the nucleus. The nuclear charge of hydrogen is 1, of helium 2, up to radium with a charge of 88, and uranium with a charge of 92.

The radium atom is remarkable because it breaks up by expelling a single alpha particle, which represents the nucleus of the helium atom, which has a charge of 2; or by shooting off an electron (beta particle). The expulsion of the alpha particle lowers the nuclear charge of the atom of radium by two units, and a substance referred to as emanation is produced which is composed of a gas, niton, allied to argon; further expulsion of alpha and beta particles produces a series of radio-active elements known as radium A, B, C, D, E, and F, until ultimately lead is formed, which is non-radio-active. No protons (hydrogen nuclei) are emitted, but only helium nuclei and electrons. Radium salts are thus being continually transformed into other metals, and it has been estimated that about half the radium will be transformed in 1,700 years. The activity of radium salts is measured by the discharge of a gold-leaf electroscope. When radium is used in mass for treatment of the patient the gamma rays only are employed, the alpha and beta particles being screened off—as, for example, by means of 1 cm. of lead. Emanation collected in capillary tubes has the same effect as radium, but its activity is soon lost and ceases in a few days.

Radium, then, has three known types of radiation: alpha particles of helium, which are readily stopped by paper or the skin; beta particles or electrons, which are stopped by 2 or 3 mm. of aluminium; and gamma rays, a type of *x* ray, but four times harder than anything which can be produced by bulbs; the gamma rays are produced by the energy liberated in the expulsion of the alpha and beta particles. Radium emanation, or radon, is usually collected in capillary tubes and retains its radio-active properties for a few days only. Substances like lead-foil, or even common salt, placed in the neighbourhood of radium become coated and can be similarly used for superficial applications. Sodium chloride so treated is sometimes dissolved in water and used for injection purposes. The only radio-active substance present in the body is potassium, and the gamma rays which it emits are of greater penetrating power than those emitted by radium.

Action.

General Effects.—The rays emitted from radium exert a pronounced action on the animal body, and if the dose is sufficient may cause death. For example, if 50 or 60 mg. of the bromide are placed within 8 or 10 cm. of a mouse-cage for two days the animals die within three weeks. Guinea-pigs and rabbits after a similar exposure also die, though only after several weeks. The symptoms are loss of hair, ulcerations on the skin, especially if the rays have not been screened, nervous symptoms such as paralysis, sexual impotence, and ultimately coma. After death the central nervous system appears inflamed, the whole vascular system is dilated, the capillaries are injected, and the nerve cells in sections show signs of degeneration, though this is not necessarily a primary effect of the rays, but may be the result of capillary haemorrhages. Larger animals do not exhibit these effects in the same degree.

Local Action.—This is of great importance in surgery, because radium is largely used to destroy tissues; for general purposes emanations are to be preferred to the metal, not only on account of convenience, but of economy and safety. The various tissues in the body are not affected equally by radium; the most susceptible is the lymphatic system, including the spleen, the gonads, and, though to a smaller extent, the central nervous system. Thus the testes of small animals atrophy, the epithelium degenerates, and spermatozoa are not formed. The effect on the ovaries is shown by the production of artificial menopause. These results are all associated with inflammatory signs, including marked dilatation of the capillaries. Developing eggs and embryos are very susceptible to the rays; bacteria, on the other hand, are affected only feebly, though the mobile forms are killed more easily than others. One explanation of the selective action of radium on certain tissues is the fact that it decomposes lecithin, and it is just those tissues which are rich in lecithin that are affected most. It has also been suggested with good evidence that the degenerative changes seen after radium are due to the toxic action of this decomposed lecithin. It may almost be accepted on broad lines that the susceptibility of tissues to radium varies with their rate of growth. Tumours are certainly more susceptible than normal tissues, rapidly growing tumours more than sluggish or benign tumours, lymphosarcoma more than carcinoma. Hence it is easy to understand that tubes of emanation buried in cancerous tissue cause degeneration of the cells and reduction in the size of the growth. In the treatment of deep-seated tumours injury to the intervening superficial tissues must be minimized as far as possible by screening off the alpha and beta rays, the alpha rays in particular having the most intense superficial effect. One other point is worth noting: the gamma rays increase the activity of the autolytic ferments, thus facilitating the absorption of dead cells. Many local conditions are now treated successfully with radium—such as rodent ulcer, lupus vulgaris, and naevi.

Systemic Action.—But besides this local action for which the surgeon uses radium, it is sometimes administered internally to produce systemic effects. Minute amounts of a salt of radium taken by the mouth are very rapidly absorbed, permeate the whole body, and are excreted as emanation and radiation by the lungs, and to a smaller extent by the urine. It is more usual, however, if a general effect is required, to take emanation either by the mouth or as an inhalation. No doubt the best method of administration for systemic effects is to use a water charged with emanation. A usual amount is half a pint daily containing 1.5 to 2 millicuries per litre. After the administration of very large amounts of emanation such as may be given as an inhalation to animals, general depression, marked dyspnoea, and death have been observed; the characteristic changes after death are widespread hyperaemia and changes in the nerve cells of the central nervous system. The indications for the employment of radium for its systemic action are still ill defined. The most successful use to which it has been put is to relieve pain in fibrous arthritis, sciatica, and tabes. The explanation of this action is suggested by the frequency with which the use of this kind of treatment is followed by a general "flare-up" of the affected tissue; indeed, the drinking of radium water may start an acute attack in any part subject to chronic inflammation. The known action of radium in producing inflammatory changes even in normal tissues is exaggerated in the case of tissues which already show chronic inflammatory effects. In other words, we are dealing with a kind of shock treatment somewhat analogous to protein-shock therapy. In chronic gout the effect is often of the same nature; in the gouty the employment of radium may initiate an acute attack, though general improvement is said to follow after some weeks. In this instance the treatment is purely palliative, since the uric acid in the blood is not affected.

Radium has met with a small degree of success in certain blood diseases. It certainly influences both the bone marrow and spleen; after the prolonged use of small doses in normal people the red blood corpuscles are said to be increased as well as the leucocytes in the peripheral circulation. Large doses have the opposite effect. There is nothing remarkable in this action; other substances have a like effect. Radium also increases the coagulability of the blood to a decided degree. In the leukaemias the local application of radium over the lymphatic glands and spleen has caused temporary improvement. It is well known that both *x* rays and radium diminish the leucocytes and the size of the spleen in leukaemia, though no permanent improvement in the disease occurs with either. It is interesting to note that the serum obtained from patients recently subjected to *x* rays, when injected into lymphocytic patients, induces a reaction.

Radium has been used also in many other diseases, such as glycosuria, arterio-sclerosis, and high blood pressure, but the beneficial results sometimes accredited to the treatment are altogether unconvincing. So far as the evidence exists, then, the action of radium is due mainly to its effect on blood vessels and perhaps on lecithin. Thus on the skin the capillaries dilate, leucocytes migrate, and later extravasations of fluid occur. The same type of action may occur in any tissue in the body, and the effect is especially marked on chronically inflamed tissues. The changes noted in the central nervous system always begin in the blood vessels, and the nerve-cell degeneration is probably secondary, though it must be remembered that the central nervous system contains a large amount of lecithin.

THE USE OF THE CAUTERY IN OPERATIONS UPON THE STOMACH.

BY

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GASTRIC operations have often to be undertaken in ill-nourished and debilitated individuals for whom the conservation of every drop of blood is a prime consideration; more than this, such operations can only be performed with any prospect of success when this primary condition of the preservation of the patient's blood is complied with. The ordinary haemostatic clamps will enable this to be done, but there are many occasions where it is not possible to gain sufficient room to apply the clamps and allow of easy suturing. This is nearly always the case with a high gastrectomy or a duodeno-antrectomy, and in such circumstances a considerable loss of blood is apt to take place from the cut margins of the duodenum, stomach, or jejunum. To avoid this some surgeons have used a Paquelin cautery for section of the viscera, but the method is objectionable because of the rather wide margin of burnt and damaged tissue that is left. This necessitates a considerable in-turn at the anastomotic site, and a mass of scar tissue remains.

FIG. 1A.

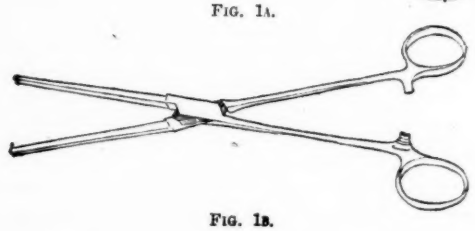

FIG. 1B.

There are two essential conditions for making the use of the cautery for this purpose satisfactory: (1) the circulation should be controlled whilst the cautery is being used, because otherwise more heat is necessary owing to the cooling action of the blood stream; (2) the heating effect should be limited to within a very few millimetres of the margin. Both these conditions are fulfilled by the use of the clamps shown in Figs. 1A and 1B. The clamps are light and narrow and yet thick. They control the circulation, and the mass of metal conducts away the heat and distributes it so that the cauterizing effect is not produced beyond the clamp itself. The clamps are used as follows:

Gastro-jejunostomy.—The jejunum and posterior wall of the stomach, having been displayed and held in apposition by two traction sutures, are fixed together by the serous stitch (Fig. 2). A small incision into each viscus is then made close to the suture line for the introduction of one blade of the fenestrated clamp. The blades of the clamp are closed and the visceral wall divided with the cautery through the slot. When the clamps are removed the small vessels divided in the edge of the incision will be found to have been sealed. Now and then a single isolated larger vessel will bleed, but this is easily controlled by a ligature, and the subsequent suturing is as easy and unembarrassed by haemorrhage as in the cadaver.

Billroth I.—In performing this operation the stomach just proximal to the pylorus has often been divided between strong clamps to facilitate access to the posterior aspect of the stomach or duodenum. The sites for division of the duodenum and stomach having been selected the viscera are sutured along this line in their posterior walls. Two clamps are then placed upon the stomach and the organ divided with the cautery distal to them, as in Fig. 3. The clamp on the lesser curvature is removed, and this part of the stomach closed with suture. The duodenum, after clamping, is divided in the same way and united to the remaining part of the cut lumen of the stomach. The fenestrated clamp is not necessary for this operation.

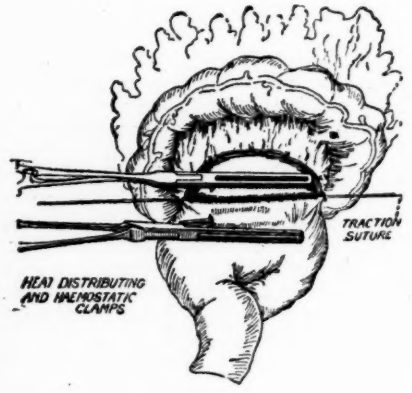

FIG. 2.

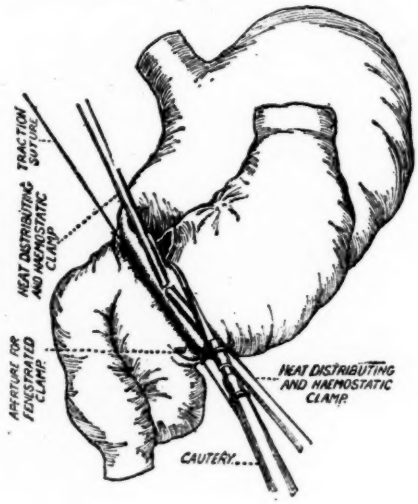

FIG. 3.

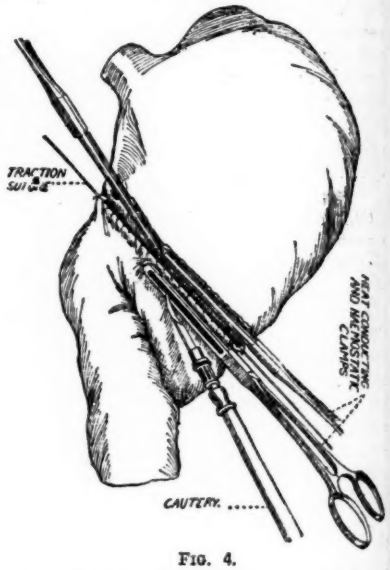

FIG. 4.

The Polya type of operation is performed in a similar way, two simple clamps being used for the stomach and a fenestrated clamp for the jejunum (Figs. 3 and 4).

The cautery technique has enabled me to undertake operations upon patients whom otherwise I should have considered unfit to stand a gastrectomy. It is, I believe, an important factor of safety in this difficult branch of surgery. It not only has this advantage, but the absence of ordinary clamps during the actual suturing makes this part of the operation easier to carry out, and thus leads to a saving of time.

PERICARDITIC PSEUDO-CIRRHOSIS OF THE LIVER, OR PICK'S DISEASE.

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THE association in young people of enlarged liver with recurring ascites and chronic adherent pericardium is not a very common condition. The earliest reported case was probably the one reported by Van Deen in 1846, but a more complete description was given in 1896 by Pick, and the symptom-complex is often described as Pick's disease, or Pick's pericarditic pseudo-cirrhosis of the liver. Most modern textbooks of medicine do no more than merely mention this disease, but many monographs have been written on it, and most of the references in this paper are abstracted from a lengthy monograph by Kelly[1] printed in the *American Journal of the Medical Sciences*.

The disease presents many problems yet unsolved, notably the true cause of the condition and the relationship it bears to two other diseases—namely, Concato's disease on the one hand, and "Zuckergussleber," observed by Budd in 1852, and graphically named "sugar-iced liver" by Curschmann in 1884, on the other.

In Pick's disease chronic adherent pericardium occurs in association with chronic venous congestion of the liver, and while few adhesions are found in the peritoneum, the surface of the liver, though often opaque, does not show the dense layer of fibrous tissue common in sugar-iced liver. Rolleston,[2] in fact, declares that there is a very definite microscopic distinction in these two conditions. The fibrous tissue increase in Pick's disease is deposited under the capsule, whereas in Curschmann's disease the fibrous overgrowth is outside the capsule. The same author also states that "if peritoneal adhesions are advanced, the condition ceases to be Pick's pseudo-cirrhosis of pericarditic origin," and belongs to that of chronic universal perihepatitis associated with adherent pericardium. Kelly also has some difficulty in classifying the three conditions which clinically and pathologically seem to merge into one another, and considers that they are best grouped under the wider term of "polyserositis" or "polyorrhomenitis."

The important factor in all is the occurrence of chronic inflammatory changes in various serous surfaces, associated with a great tendency to ascites; this demands frequent tapping, although the intervals between each paracentesis may be far apart. In a case described by Rumpf the ascites was tapped 301 times, and in Osler's[3] case of a child 121 times. This factor alone is of importance in distinguishing the disease from the true multilobular cirrhosis, which rarely requires tapping more than a few occasions before death ends the disease. In other respects the etiology is different from cirrhosis chiefly in respect of the age incidence—polyserositis tending to attack young people—and in the absence of the usual irritants—for example, alcohol. Pick recognized this difference when he called his disease "pseudo-cirrhosis," but the name is not a bad one, as when the cases are seen first the diagnosis of cirrhosis is often made, especially as the adherent pericardium is sometimes difficult to diagnose during life. When the disease occurs in young people an alternative diagnosis of tuberculous peritonitis is often made, and in this connexion Rolleston and others[4] consider that the tubercle bacillus may play a part in the causation.

The pathological findings in polyserositis are fairly constant and have been reported many times. In fully developed cases changes are found in all the serous surfaces, although the changes in the pericardium and round the liver are the most obvious and most constant. Dense adhesions, often calcified, are found in the pericardium, valvular disease is often present, and the heart enlarged. Adhesions occur in both pleural cavities, the right side being usually more advanced than the left. Enlarged spleen with perisplenitis and chronic peritonitis occur. The liver is usually enlarged, and shows the usual nutmeg character of chronic venous congestion. Microscopically, the liver shows irregular areas of fibrosis, but generally the amount of fibrosis is scanty and may be absent in considerable areas (Rolleston).

Most observers have been puzzled, in view of the pathological findings, to explain the recurring ascites, and many theories have been advanced. The frequent occurrence of dense adhesions in the right pleural cavity was believed by Weinberg, in 1887, to cause angulation and distortion of the inferior vena cava and hepatic veins, and Eisenmenger supported this theory in 1900. Neither Kelly nor Rolleston favours this view. Harris (1895) considered that the ascites was the result of a peculiar form of chronic peritonitis, while others believe that the heart condition is responsible. Against this latter view is the usual absence of oedema of the legs, although in some cases a transient oedema occurs at the beginning of the illness. Kelly sums up the three opinions thus: (1) That the ascites is due to changes in the liver, the result of long-standing congestion. (2) That the ascites is due primarily to the chronic peritonitis. (3) That the ascites is due to the combined action of these factors.

The actual exciting cause of the condition is still obscure. In many cases there is no history of antecedent illness. In others there is some indication of an acute onset attacking one serous membrane—for example, the disease may follow a definite attack of pleurisy or an attack of pericarditis. It has occasionally followed certain acute and infectious illnesses, notably rheumatism, syphilis, typhoid fever, and malaria. Both Kelly and Rolleston lay great stress on antecedent rheumatism. Others believe that the tubercle bacillus is an important factor even in the absence of definite evidence of tuberculosis, and some authors actually state that all cases of chronic adhesive pericarditis are tuberculous in nature. Certainly it is a fact that some of these cases ultimately die of tuberculosis. Picchini (1901) distinguished four groups of cases.

1. Cases where the origin of the disease can be determined—that is, the first serous membrane affected.
2. Cases where the origin may be determined, but in which the first examination of the patient reveals some affection already of several serous membranes, although they manifest no clinical signs.
3. Cases where the history reveals that from the beginning several serous membranes have been affected.
4. Cases where it cannot be determined whether the disease began with one or more serous membranes.

Mention has already been made of the prevalence of the disease in youth, and the following figures from Kelly's paper demonstrate this fully. Of 39 cases, 21 occurred in males, 18 in females: 3 were under 10 years of age, 13 were between 11 and 20 years, 3 were between 21 and 30 years, 5 were between 31 and 40 years, 11 were between 41 and 50 years, and 4 were between 51 and 54 years.

The following case exhibits most of the clinical features common to such cases—namely, the early age incidence, the absence of antecedent disease, the gradual onset, the occurrence of ascites and enlarged liver, in association with evidence of cardiac disease, presumably adherent pericardium.

A boy, aged 14½ years, was admitted to the North Staffordshire Royal Infirmary on June 26th, 1928, because of ascites and throbbing of the neck.

History.—In June, 1927, he began to notice an increasing size of the abdomen, which caused him to have some slight shortness of breath on exertion, so that he no longer could challenge boys to run races or play football with vigour. Closer questioning elicited the fact that pulsation in the neck on the right side had been noticed by his parents for the previous two years, but no importance was placed by them on this observation as they looked upon him as a perfectly fit boy, who had played football for the school for two seasons. He left school at Christmas, 1927, beginning work as an apprentice engineer in January, 1928, and working steadily until June 5th. On this date various apprentices were referred to the factory surgeon for examination as to fitness, when this boy was rejected and advised to secure medical advice. For the purpose of this examination he cycled a distance of three miles, and on arrival was obviously short of breath. He then consulted Dr. A. Gilchrist of Burslem, who diagnosed "Concato's disease" and referred him to the Royal Infirmary.

Previous Illnesses.—He was born at full time, was bottle-fed, and was not looked upon as a delicate child. When 2 months old he had a slight attack of bronchitis or broncho-pneumonia lasting two weeks, from which he made a full recovery and had no complications. At the age of 7 years he developed measles, and again there were no ill effects. He has suffered from occasional colds in the head and slight rheumatic pains in the wrists in winter, but there is no history of tonsillitis, chorea, or acute rheumatism, and no record of pleurisy. At the age of 12 he slipped off a 4-foot wall to the ground and landed with his knee pressed against his chest. He was at once short of breath, and had pains across the chest which lasted three hours, after which he felt quite well and returned to school the next day. Since measles at the age of 7 he has not missed school attendance.

The family history is not important, the parents being alive and healthy, three brothers alive all healthy, and no deaths in the family have occurred. There is no tuberculous history on either side.

Symptoms on Admission.—Fullness of the abdomen and throbbing of the neck were the obvious symptoms. Occasional pain across the chest and in the left shoulder and slight indigestion were further admitted. No cough was complained of, and no record could be obtained of swelling of the legs.

Condition on Examination.—His height was 5 ft. 1¼ in., his weight 7 st. 10 lb. He did not look a robust boy, the complexion being somewhat sallow, but there was no cyanosis and no obvious shortness of breath. Undue venous pulsation was noticed in the neck, especially on the right side. No clubbing of the finger-nails was present and no oedema of the legs. The abdomen was distended by free fluid, the circumference at the umbilicus being 32 inches. The free edge of the liver could be felt three inches below the costal margin, the liver itself feeling smooth but firm. Scanty pubic hair was present, but there was no hair in the axillae. A few small glands were present in the axillae. The teeth were good, the tonsils not enlarged, tongue slightly coated. On July 8th paracentesis was performed, 96 ounces of a clear straw-coloured fluid being withdrawn. Culture was negative, and very few lymphocytes were found on staining. Injection into a guinea-pig had no ill effects on the latter. After withdrawal the lower pole of the spleen was just palpable. No enlarged glands or tuberculous masses could be felt in the abdomen. The chest was hyper-resonant in the upper lobes. The lungs expanded freely. The breath sounds throughout were harsh vesicular in type. No adventitious sounds were heard except a fine friction over the splenic area. The chest was *x*-rayed on June 26th by Dr. J. Bromley of Stoke-on-Trent, who reported as follows:

"Both diaphragms are raised, doubtless due to the amount of free fluid in the abdomen. There is no marked increase in the extent of the hilum shadow and no impaired air entry into the chest." The urine was free from albumin and sugar, and the urea concentration test was normal. Blood urea did not exceed 13.5 mg. per 100 c.cm. The Wassermann reaction of the blood was negative. A fractional test meal revealed no abnormal features. The levulose tolerance test increased the amount of sugar in the blood from 0.12 to 0.22 per cent., and no sugar was passed in the urine. The blood count on June 26th showed red blood cells 3,700,000, white blood cells 11,500, haemoglobin 75 per cent. Differential count: Polymorphs 80 per cent., lymphocytes 18 per cent., eosinophils 1 per cent. No abnormal cells were found.

Condition of the Heart.—A distinct fullness was observed over the precordium. The apex pulsation was scarcely visible, and there was no indrawing of the interspaces. No thrill was felt on palpation, and the positions of the heart borders and of the apex beat itself were difficult to define by percussion, owing to the hyper-resonant note of the lungs. Careful percussion, however, seemed to locate the apex beat in the fifth interspace about half an inch outside the nipple line. There was a definite epigastric pulsation visible. Auscultation revealed a curious high-pitched musical squeak, which was audible at one time and absent at another. The character of this bruit was very peculiar. On certain occasions it was heard all over the precordium and over the left scapula; at other times it was absent behind. Sometimes it was more marked at rest, sometimes only after exercise. It was at times loudest during deep expiration, and occasionally it would disappear altogether for long spells, during which intervals no valvular disease was apparent. The timing of this sound also varied. Usually it coincided with the closure of the aortic valves, at other times it occurred during ventricular systole. It seemed to have its origin outside the heart itself, and probably depended upon some adhesion between the pericardium and neighbouring structures. The systolic blood pressure was consistently low, the average being 112 mm. of mercury. The pulse rate averaged 90 per minute, and the exercise tolerance test was normal. The electrocardiogram taken both before and after paracentesis showed the constant inversion of T-wave in leads ii and iii. No particular ventricular preponderance was present.

Progress.—After paracentesis on July 8th the boy's health seemed to suffer and a progressive slight loss of weight occurred for a week or two afterwards. With iodide of iron internally and iodoform inunction to the abdomen his health began to improve and he gained weight—some of this increase being due no doubt to a slight return of the ascites. The chest was again *x*-rayed by Dr. J. Bromley on August 10th, his report being: "There appeared to be some enlargement of the ventricular shadow to the right, while in the left hilum a distinct bulge is seen, suggesting an enlarged clump of glands. Both diaphragms moved well at this examination." A further blood count was performed on August 22nd, which showed the improvement which had occurred—namely: red blood cells 5,500,000, white blood cells 16,500, haemoglobin 85 per cent. Differential count: Polymorphs 78 per cent., transitionals and mononuclears 4 per cent., lymphocytes 16 per cent., eosinophils 1 per cent., basophils 1 per cent. No abnormal red cells were found.

He was discharged on September 1st in good condition, and when re-examined on November 4th, 1928, he looked plump and well, but ascites had largely accumulated again and a very slight oedema of the legs was found. His weight was 8 st. 3 lb., and there was no apparent shortness of breath or distress on exertion. Further paracentesis will shortly be necessary.

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INOPERABLE CARCINOMA OF THE BREAST TREATED WITH RADIUM.

BY

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In considering the radium treatment of carcinoma of the breast it must be remembered that both external applicators and needles are employed. The apparatus must be screened in such fashion as to cut off the beta rays, which are harmful to the tissues, and permit the gamma radiation to pass; 2 mm. of lead is recommended for external plaques when prolonged exposures are contemplated. A compound known as "Columbia wax" is most useful when treating a large surface area. For slow-growing tumours needles with walls of 0.5 mm. of platinum are recommended; these vary in active length from 1 to 5 cm., and contain 0.5 mg. of radium element to each centimetre. More recently tiny needles known as "seeds" have been found to be useful in some cases. The most convenient seed is one containing 2 millicuries of radon and screened through 0.5 mm. of platinum or gold. In cases of encephaloid character, where the growth is extremely rapid and very vascular, more powerful needles, screened through 1 mm. of silver, are often of great value.

REVIEW OF CASES.

An attempt has been made to ascertain the fate of the 633 patients suffering from breast carcinoma who have been treated at the Radium Institute during the last ten years. A study of these cases has not only made it possible to form an opinion as to the value of radium therapy in hopeless cases, but from the information obtained certain principles can be formulated for the treatment of patients in whom the disease is less advanced. In the series under review, which does not include patients who received prophylactic treatment, it was found that in every case the disease had extended to tissues outside the breast itself.

TABLE I.—*Showing Type of Cases and Site of Metastases.*

	Total No. of Cases.	Primary Inoperable Cases.	Recurrent Cases	Axillary Glands.	Supraclavicular Glands	Chest Wall.	Ulceration.	Oedema of Arm.
1918	82	16	66	43	44	25	4	11
1919	88	21	67	39	45	21	4	13
1920	81	29	52	31	30	33	10	19
1921	69	16	53	31	29	32	11	12
1922	41	6	35	19	20	15	6	5
1923	44	10	34	23	11	11	12	5
1924	39	12	27	23	16	13	3	10
1925	66	15	51	36	34	26	11	10
1926	58	21	37	24	27	21	8	11
1927	65	18	47	31	34	26	14	12
	633	164	469	300	290	223	83	105

TABLE II.—*Showing Prolongation of Life from Date of First Treatment.*

	No. of Cases.	Alive at 10 Years.	Alive at 5 Years.	Alive at 3 Years.	Total Surviving 3 Years or More.	Improved Markedly.	Not Improved.
1918	82	5	3	10	18	37	15
1919	88	—	13	12	25	31	21
1920	81	—	10	5	15	23	7
1921	69	—	13	7	20	32	9
1922	41	—	3	6	9	18	7
1923	44	—	4	2	6	16	8
1924	39	—	—	5	5	22	10
1925	65	—	—	14	14	19	12
	510	5	46	61	112	198	90

Summary of Results.—Of 510 cases (1918–25), 112 were alive at the end of three years=22 per cent. Of 405 cases (1918–23), 51 were alive at the end of five years=12.6 per cent. Of 82 cases (1918), 5 were alive at the end of ten years=6.1 per cent. All those patients on whom a recent report has not been received have been regarded as having died at the date of the last report.

CONCLUSIONS.

Not only are the results given above very encouraging, but a large number of patients (about 40 per cent.) showed marked temporary benefit, even though they succumbed within three years of treatment. Most of the cases were too advanced to offer any hope of cure, but much was done to relieve suffering and control the progress of the disease. Distressing symptoms were often alleviated, and in many cases life was prolonged for a considerable number of years. Ulcerations were healed or prevented, thereby relieving the patient of a good deal of pain. Cutaneous nodules disappeared, while large swellings became smaller and less fixed, often regressing to such an extent that only a residual thickening could be felt. Relief was often obtained even in cases where there was marked lymphatic obstruction with oedema of the arm, the limb becoming less swollen and more movable.

It must be remembered that the above series represents pioneer work in the radium treatment of breast cancer. A review of cases treated during the past three years promises to show more favourable results. This is due to the fact that patients are being sent for treatment at a less advanced stage, and also to the advances made in technique during the last three years.

SOME GENERAL CONSIDERATIONS IN THE TREATMENT OF CARCINOMA OF THE BREAST.

Cases may be classified into three groups: early operable, late operable, and inoperable.

Early Operable.—Although the logical conclusion is that radium therapy is competent by itself to deal with very early cases of carcinoma of the breast, it has yet to be shown that radium treatment alone can give as good results as operation. When the growth is still confined to the breast, and there are no palpable axillary glands, operation has given good results. Statistics published by the Ministry of Health show that operation will keep 73 per cent. alive for ten years. In this class of case radium treatment must not be regarded as a substitute for operation at present, but much may be accomplished by using radium as an adjunct to surgery. Striking results have been obtained by Mr. Geoffrey Keynes in cases of carcinoma which are technically operable; but at present his cases are too recent to justify any positive deductions, and it remains to be seen whether the ultimate results of the treatment are as good as those of surgery.

Late Operable.—This is a group of cases which requires careful consideration. The disease is no longer confined to the breast itself, but is still considered technically operable by all but the most conservative surgeons. Of the 633 patients treated at the Radium Institute between 1918 and 1928 74 per cent. were recurrent cases following amputation of the breast. Of these cases 290 (46 per cent.) had palpable supraclavicular glands. The fact that a large proportion of these metastases became evident within six months from the date of operation shows that a much more conservative judgement is required in deciding whether a breast cancer is operable. This is a most important point. Of these "late operable" patients few are cured, and some are made worse by operation. An area containing cancer cells is opened up by unsuccessful surgery, and this acts as a stimulus to the growth. When a recurrence appears the axilla soon becomes filled with a fixed mass of disease. There is much scarring and fibrous tissue formation, the blood supply is poor, and there is little or no surrounding healthy tissue. Subsequent radium treatment is undertaken at a great disadvantage, and with less chance of success than if radium had been employed without any previous operation.

Inoperable.—Inoperable and recurrent cases, in which a radical operation is out of the question, have been considered above. This class of case is often greatly benefited by radium treatment. Some surgeons remove as much of the growth as possible, and then pack the wound with radium. Experience has shown that this is frequently a disastrous procedure. Metastases in the supraclavicular region should be treated with radium alone, since the results following excision do not encourage operative intervention.

The Primary Growth.

The treatment should be such as to cause the growth to disappear with little or no tissue necrosis. The amount of radium required, the intensity of the dose, the filtration, and the time of exposure vary to some extent with the nature and extent of the neoplasm. Scirrhous growths require needles of low content heavily screened and left *in situ* for a comparatively long time, about a week. When an ulcer exists the needles should be introduced into the healthy tissue in the immediate vicinity of the growth. Isolated subcutaneous nodules are best treated with platinum or gold seeds containing radon. Retrogression usually occurs much more slowly in schirrous growths than in highly cellular tumours. The reason for this probably lies in the comparative avascularity of schirrous lesions. Large doses of radium, especially if lightly screened, may cause necrosis and sloughing. Encephaloid tumours, apart from being more cellular, are more vascular. Rapidly growing tumours are more susceptible to irradiation, and respond more dramatically than the schirrous growths. They require a large dose for a comparatively short time, three or four days, and the needles need not be so heavily screened. Severe systemic disturbance often occurs in the course of the treatment of such cases, owing probably to the absorption of products of disintegration, and a very remarkable degree of shrinkage is often seen at the end of a fortnight or three weeks after irradiation. The treatment of the primary growth should be supplemented by the application of an external plaque, but it is inadvisable to employ this when the needles are *in situ*.

The Associated Lymphatic Areas.

Just as in the surgical treatment of carcinoma of the breast it is not enough to do a local amputation, so in the radium treatment it is insufficient to treat only the primary growth, even if there are no palpable glands. The treatment should be directed on the same lines, by a thorough irradiation of the chest, concentrating on the associated lymphatic areas, and those areas in which metastases and recurrences are most likely to appear. (See Table I.) Mr. Geoffrey Keynes in his technique irradiates these areas by inserting radium needles of low content in the axilla, above and below the clavicle, and at the sternal ends of the first three or four intercostal spaces. Mr. Sampson Handley treats these areas by burying very powerful needles in similar situations for much shorter periods, and if the case is operable he performs a complete amputation of the breast at the same time. Mr. Handley believes that breast cancer when it comes to operation is already an intrathoracic disease. Although the needles inserted in these areas have prevented metastases occurring in Mr. Keynes's series the rational treatment appears to be to treat the chest more thoroughly. The area to be irradiated must be a wide one, and is best treated by the external application of large quantities of radium over a comparatively long period, concentrating on these particular areas. Apart

from the fact that a more thorough irradiation of the mediastinum is obtained there is no risk of necrosis of cartilage or bone, which may occur even with needles of low content buried in the near vicinity of these tissues. Heavy filtration is necessary—2 mm. of lead or its equivalent should be employed. Large doses must be given at a minimum distance of 15 mm. from the skin surface.

External application of radium has been discouraged as unsuccessful mainly by those who have not had sufficient quantities at their disposal, for inadequate doses of radium have been responsible for many so-called failures. External irradiation, however, has a very definite place in radium therapy, although it must be remembered that the skin is very sensitive and is easily damaged by rays which are insufficiently screened. In this country Mr. Stanford Cade has shown that the skin can be subjected to enormous doses in the "collar treatment" of secondary cervical glands by using heavily screened radium applied to a mould of "Columbia wax." The superficial layers of the skin peel off, but the skin heals rapidly, leaving a soft pigmented scarred surface, but no contraction. This effect on the skin must be caused by the continuous gamma radiation, which has this effect only when employed for long periods.

Pre- and Post-operative Radium Therapy.

This is still a matter for a great deal of investigation. It has been impossible to form any opinion as to its value from the study of cases treated at the Radium Institute, but there are reasons for supposing that many recurrences might be prevented if pre- and post-operative irradiation were more often employed. Statistics have been published to show that in patients who have had pre- and post-operative irradiation the outlook is better than in cases treated by surgical means alone. It has been erroneously stated that pre-operative radium treatment causes delay in healing, and affects the tissues in such a way as to make operation more difficult. Microscopical sections of irradiated tumours tend to show that it is unnecessary to postpone subsequent operation for more than a fortnight.

There is no doubt that recurrences appearing after prophylactic irradiation are very refractory to further irradiation. Similarly it is found that a second treatment of any neoplasm is less effective than the primary treatment. For this reason the first treatment should always be as thorough and vigorous as possible. If a second treatment is necessary the dose must be relatively smaller.

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THE EFFECTS OF ANAESTHESIA, OPERATION, AND CERTAIN OTHER FACTORS ON GLYCAEMIA.

A PRELIMINARY INVESTIGATION.

BY

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THE administration of glucose is an accepted procedure in the treatment of post-operative shock. The value of this treatment is now questioned, since it has been reported that hyperglycaemia occurs after operation. This investigation was undertaken to determine the effect upon the blood sugar of a surgical operation carried out under routine conditions, and to ascertain the factors which influenced any changes observed. The action of the administration of rectal and subcutaneous glucose salines was studied.

Investigation Carried Out.

Observations were made on patients who had been admitted to the wards and who all had the routine preparation, except in those cases admitted as emergencies for immediate operation. The last meal was on the evening before operation, but the patient received a cup of tea early the next morning. Purging of the patient was restricted to a small dose of castor oil on the day previous to, and an enema on, the morning of operation.

In most cases the blood sugar was estimated before operation, and on many occasions after the commencement of the operation. In several cases the blood sugar was estimated again some days after operation under conditions similar to those which obtained on the day of operation, but, of course, without the mental strain which operation entails. In addition to the investigation of the blood sugar, patients have had a record of the pulse rate taken at corresponding intervals of time, and these readings have been graphed along with the blood sugar curve. In all cases we have noted: (1) The history of the illness, attention being especially directed to any points which might be suggestive of sepsis or of diabetes. (2) The general condition of the patient, especially any degree of shock or constitutional disturbance. (3) The nature and duration of the anaesthetic, together with the time and dose of any drugs administered.

Method.

Samples of venous blood were taken from the patients at various times. The estimations of the blood sugar were made by means of the Benedict picric method,[1] which allows of some delay between the obtaining of the sample and the carrying out of the estimation. The estimations which involved the comparison of fine degrees of colour were undertaken by one of us (E. M.) to avoid possible individual variation. Seventy-seven cases have been investigated and have been analysed.

Pre-operative Level of the Blood Sugar.

The average level of the blood sugar in a fasting healthy adult when estimated by this method is 120 mg. per cent.[2] In all our cases we examined the blood sugar before operation to enable us to establish a standard for each patient, and we found that the pre-operative level of the blood sugar varied considerably. The highest level which we have observed has been 227 mg. per cent., while the lowest level in our series was 84 mg. per cent.; the average reading obtained from the 73 cases analysed was found to be 124.3 mg. per cent. According to Pierce and Scott,[3] who used MacLean's method of blood sugar estimation, the normal level of the blood sugar in a healthy adult lies between 95 and 99 mg. per cent. In view of these figures and the figures of Levi[4] and Miss Potter[5] (to which reference will subsequently be made), it seems to be a fair conclusion that there is a phase of hyperglycaemia before operation. An analysis of our cases suggests that the condition from which the patient was suffering had a considerable influence upon the level of the blood sugar.

We made a special analysis of those cases where the pre-operative level of the blood sugar was above the recognized maximum in normal people (160 mg. per cent.).[6] We found that out of the 57 cases operated on under general anaesthesia 13 were above this high level of glycaemia, and averaged 184 mg. per cent. Of these 13 cases 9 were admitted as emergency cases—3 being duodenal perforations and 4 acute appendicitis.

The effect of various conditions is also borne out by Table I. We conclude that three factors are demonstrated to bear influence on the glycaemia: (1) acute infection, (2) surgical shock, (3) peritoneal irritation. Nervousness is a factor in pre-operative hyperglycaemia, since such

TABLE I.—*Pre-operative Blood Sugar in Various Conditions.*

Condition.	Cases.	Average Pre-operative Blood Sugar.
		mg. per cent.
Hernia and hydrocele	9	114.1
Acute appendicitis localized—that is, acute infection	12	137.0
Shock: fractured femur (2), concussion, strangulated hernia	4	160.5
General peritoneal infection: perforated duodenal ulcer (4), appendicitis	5	185.4
Various cases in which there was a well-marked focus of chronic sepsis	7	114.4
Various cases in which no obvious sepsis was noted	17	122.3

operations as those for hernia and hydrocele, which we have found to be unassociated with pre-operative apprehension by the patients, have not a high blood sugar content.

Variation in Blood Sugar during Operation under General Anaesthesia.

Ethyl chloride, chloroform, and ether were the anaesthetics employed during routine operations. In only a few of our cases did the patients have an all-chloroform or all-ether anaesthesia. We have considered all these cases together because the reaction observed does not appear to depend on which of the above drugs was used. Fifty-seven cases were given a general anaesthetic, and had blood sugar curves prepared which show the relationship between the pre- and post-operative levels. Of these, 48 showed a rise in the blood sugar content, while 9 showed a fall. Over the whole of this series of cases the average rise in the blood sugar content as compared with the pre-operative

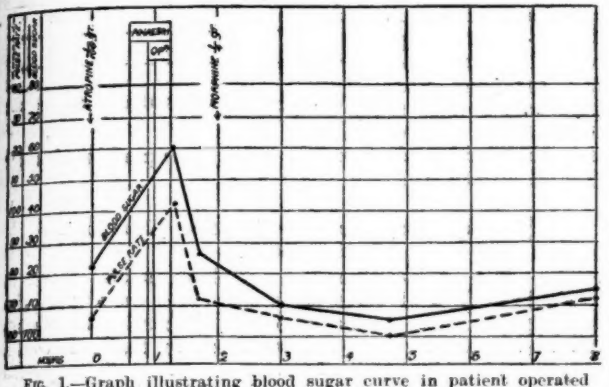

FIG. 1.—Graph illustrating blood sugar curve in patient operated on under general anaesthesia. Note similarity between pulse rate and blood sugar curves.

level was 44.96 mg. per cent., the greatest increase observed being 165 mg. per cent. and the greatest decrease 39 mg. per cent.

The observations showed that in the majority of the cases the reading of the blood sugar at the end of the operation and the administration of the anaesthetic was the highest obtained. The subsequent estimations approximated more closely to the pre-operative level. In no case, however, did we find any evidence of a period of hypoglycaemia, although we made systematic observations up to eight hours after the operation, and in some cases over a longer period—up to thirty-six hours. Investigations after eight hours, however, were considered to be vitiated by the number of complicating factors—for example, food, sedatives, restlessness, etc. Fig. 1 illustrates the type of curve obtained.

Post-operative Glycaemia.

In order to enable us to form an opinion of the post-operative variations of the blood sugar content, we compiled the accompanying composite graph (Fig. 2), since it is apparent that specimens of blood cannot be withdrawn from patients after surgical operations with the frequency

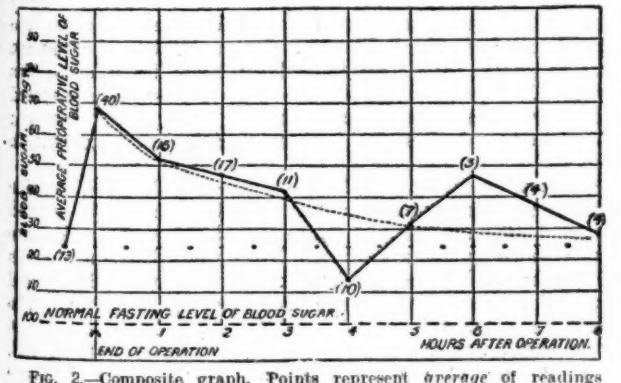

FIG. 2.—Composite graph. Points represent *average* of readings taken each hour. Dotted line indicates probable course of blood sugar—cf. Fig. 1.

and regularity which strict scientific investigation of this problem requires. The points on the graph represent the average of the readings taken at certain periods after operation. Thus, in 16 cases the average reading of the blood sugar one hour after operation was 28 mg. over the pre-operative level, while in 17 cases the average reading two hours after operation was 23 mg. over this level. For the first three hours of the post-operative period the points gave a regular curve, but thereafter the figures showed some variation. We believe this to be due to (1) the fewer readings on which the graph at these points was based, (2) the increasing number of factors which altered the condition of the patient. We suggest, however, that the dotted curve indicates the course which the blood sugar will follow after an operation under general anaesthesia in the average case.

Relationship between Duration of Anaesthesia and Hyperglycaemia.

We have found evidence that there is a relationship between the absolute rise of the blood sugar and the duration of the anaesthesia. Table II shows the figures

TABLE II.—*Relationship of Duration of Anaesthesia to the Rise of the Blood Sugar Content.*

Duration of Anaesthesia.	Rise in Blood Sugar (mg. %).	No. of Cases.
Up to 30 minutes	27	12
30–45 minutes	41	23
45–60 ,, ...	62	13
60–75 ,, ...	58	10
90 minutes	(38)	(1)
110 ,, ...	(47)	(1)

obtained from a series of 58 of our cases, and suggests that the more prolonged the anaesthesia the greater will be the increase of the post-operative over the pre-operative reading. Twelve cases have been investigated with a view to

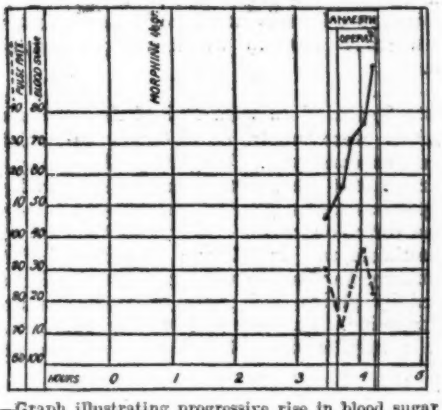

FIG. 3.—Graph illustrating progressive rise in blood sugar during anaesthesia and operation.

ascertaining the changes which occur during the operation, and have nearly all shown a progressive rise in the blood sugar content. It has been noted in one or two cases where the anaesthetic had been administered for some time before the actual operation started that the rise in this period was very similar to the rise in the second period during which the operation was being actually performed. One typical graph to illustrate these points is given (Fig. 3). We did not find that the post-operative duration of the hyperglycaemia depended on the duration of the anaesthesia.

The Duration of the Hyperglycaemia.—The question of the severity of the operation and the duration of the anaesthesia with their relation to the blood sugar curve was brought specially into prominence by the statement of Levi[4] that the duration of the period of hyperglycaemia depends on these factors. We cannot confirm this statement. In our series of cases we found eight cases in which the hyperglycaemia was sustained for a longer period than our composite graph showed to be normal, but we have failed to find any common causal factor. The operations included severe surgical intervention such as amputation

of the breast and gastro-enterostomy, and also simpler operations like appendicectomy and herniotomy. We further investigated the question of the absolute rise in the glycaemia in association with the *severity* of the operation. We were unable to find any difference in the average levels of the hyperglycaemia in the cases of the more severe operations and those less severe, always provided that the operations were of approximately the same average duration.

Hyperglycaemia after Abdominal Operations.—We found that there was a greater rise in the blood sugar content after those operations where the peritoneum had been irritated than in those cases in which the peritoneum had not. Table III shows this fact.

TABLE III.—*Relationship between the Degree of Hyperglycaemia and the Type of Operation.*

Type of Operation.	Average Duration. (minutes).	Rise in Blood Sugar (mg. %).	No. of Cases.
Abdominal...	46	50.3	38
Extra-abdominal	54	39.35	17

Pulse Rate and Glycaemia.—We have been struck by the fact that the blood sugar curve and the pulse rate curve are very similar. This has held true not only for what we have come to regard as normal curves, but even where the curves were atypical. (See Figs. 1 and 4.)

Fall in Blood Sugar During Operation.—In 9 cases (15.8 per cent.) of the 57 cases analysed we observed a fall in the blood sugar content during operation instead of the usual rise. We believe that such a fall is associated in most cases with a high pre-operative level in the blood sugar content. It is to be noted that 6 of the 9 patients showing a fall in the blood sugar after operation are in the group of 13 cases with high pre-operative blood sugar levels (over 160) to which reference has already been made.

Cases Operated on with Spinal Anaesthesia.

Observations were made on 6 cases in which spinal anaesthesia was employed. We found the changes in the blood sugar content were not in conformity with those in which the patient had a general anaesthesia for operations of the same duration of time. The method of producing spinal anaesthesia was as follows: One hour before operation preliminary narcosis in the form of "twilight sleep" was induced by giving 1/4 grain of morphine and 1/100 grain of hyoscine. In one case where there was much excitement a further dose of 1/6 grain of morphine and 1/200 grain of hyoscine was given a quarter of an hour before operation. The spinal injection consisted of tropacocaine 0.075 gram in 3 cases, stovaine 1 c.cm. of 10 per cent. solution in 3 cases.

TABLE IV.—*Blood Sugar Changes in Cases of Spinal Anaesthesia.*

No. of Case and Nature.	Blood Sugar before Narcotic Injection.	Blood Sugar after Narcotic before Injection of Spinal Anaesthetic.	Blood Sugar after Spinal Anaesthetic before Operation.	Blood Sugar after Operation.	Subsequent Blood Sugar Estimation.	Rise of Blood Sugar during Operation only.
						mg.
2. Excision of rectum*	170	120	125	175	—	40
21. Inguinal hernia ...	134	133	129	146	144 1 hr. later	17
46. Hernia†	92	—	87	129	127 2 hrs. later 111 3 hrs. later	40
56. Amputation of leg	85	96	—	80	100 4 hrs. later	−16
58. Diabetic gangrene amputation‡	83	103	—	116	—	33
59. Tuberculous knee; amputation through thigh	100	119	—	108	140 3 hrs. later	−11

* Patient shocked; given subcutaneous salines; was very nervous before operation.

† This patient was given a double dose of narcotics.

‡ Patient received post-operative treatment with glucose and insulin.

The degree of glycaemia was estimated just before the administration of the narcotic and at varying periods thereafter. Table IV shows the results obtained. From the readings it will be observed that there was a rise of the blood sugar during the operation in 4 cases and a fall in 2 cases—the average being a rise of 13.8 mg. per cent. This figure is very considerably lower than the corresponding one for operations performed under general anaesthesia. (Fig. 4.)

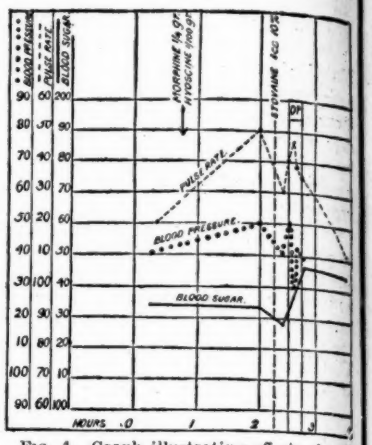

FIG. 4.—Graph illustrating effects of spinal anaesthesia.

Effect of Morphine and Hyoscine given before Operation.

The effect of hyoscine and morphine is also shown in Table IV. In 5 of these cases there was an average rise of 9 mg. per cent. In one case (No. 2) there was a distinct fall in the blood sugar, but we noted in this case that a very considerable degree of nervousness was allayed by the administration of the narcotic. We have also investigated the effect of morphine (1/6 grain) given before a general anaesthetic, and we have found an average rise of 19 mg. per cent. within one and a half hours. We would, however, point out that this small dose of morphine is not sufficient to control the excitement which is initially present and which is increased by the taking of the patient to the theatre, where the second sample has invariably been taken. The action of morphine is twofold; it is generally accepted that it raises the blood sugar, but we believe that in so far as it allays nervousness it may cause a lowering of the blood sugar.

Administration of Glucose after Operation.

In our series of cases we have had 6 patients in whom the post-operative shock was sufficiently severe to call for the administration of a subcutaneous glucose saline, which has been our previous routine treatment, 500 to 900 c.cm. of 6 per cent. glucose being given. We have been interested to note that the blood sugar, just before the administration of this glucose, in 2 cases was over 200 mg. per cent., while the average level was 174 mg. per cent. in the 6 cases. In another case glucose was given subcutaneously during operation, and at the end of the operation the blood sugar stood at 224 mg. per cent., but the patient was so shocked that an immediate blood transfusion was ordered. There is no doubt that glucose administered subcutaneously causes a rise in the blood sugar content; the average blood sugar content rose in our cases within one and a half hours by 68 mg. per cent.

Glucose enemata, which were given both as a routine measure in cases where stomach operations had been carried out and as the treatment for minor degrees of shock, gave much more variable results. We found that in a series of 7 cases the blood sugar level before giving the first rectal glucose was high (average 153 mg. per cent.). The readings after administration of enemata varied; in 3 cases there was a distinct rise, in 4 cases a distinct fall, and in one case little change. The highest increase observed was 33 mg., while the greatest decrease noted was 49 mg.

Levi[4] has reported 10 cases in which he has investigated the blood sugar after operation. In all of these cases there has been noted a rise in the level of the sugar content,

and he has found that the maximum rise occurs in the first reading taken after the operation, after which there is a gradual fall. Some of his samples were taken as long as forty-eight or seventy-two hours after the operation. In this series of cases the average pre-operative level was 133.4 mg. per cent., and the average rise in the reading, in the seven cases investigated, within half an hour of the completion of the operation was 29 mg. per cent.

Levi states that the duration of the rise depended on the duration of the anaesthetic and the severity of the operation. In our opinion there is not sufficient regard paid by this investigator to the effect of post-operative treatment as affecting the figures on which he bases these conclusions, and our own observations do not confirm them.

D. Potter,[5] working in the gynaecological wards in Edinburgh Royal Infirmary on the chemical changes in the blood following on operation, showed that there was a distinct rise in the blood sugar content. The average initial reading which she obtained was 125.3 mg. per cent. (but it should be noted that these cases all received a small dose of morphine before the blood sample was taken), while the average rise in the sugar content was 35.3 mg. per cent. D. Potter comes to the conclusion that the hyperglycaemia is more dependent on the ether administered than on the excitement or asphyxia due to the operation.

Mackay[7] has recently made two communications on this subject. He groups his cases according to whether the anaesthesia was of thirty or sixty minutes' minimum duration. The average figures which he obtained are quoted, since they show close similarity to our own results. In twenty cases with shorter anaesthesia the average pre-operative reading was 106 mg. per cent., and the average rise at the end of the operation 43 mg. per cent. In the group with longer anaesthesia the corresponding figures were 112 mg. and 104 mg. per cent.

Clinical Application.

We desire to draw attention to two indications in the treatment of cases which result from our investigations:

1. In the preparation of a patient for operation nervousness should be allayed. We have not sufficient data on which to found definite rules, but sedatives seem to be indicated.

2. The post-operative phase is accompanied by a raised blood sugar content, and therefore there is no necessity for the administration of glucose.

Conclusions.

1. Four factors at least predispose to a high pre-operative level of the blood sugar—namely, acute infection, peritoneal irritation, shock, and nervousness.

2. Following operations under general anaesthesia there is usually an increase in the blood sugar content, but there is never a hypoglycaemia.

3. The maximum rise is seen immediately after operation, and from this point there is a fall to the pre-operative level, which is approximately reached in eight hours.

4. There is a close relationship between the absolute rise of the blood sugar and the duration of the anaesthesia.

5. In cases of post-operative shock the blood sugar content is high.

6. In spinal anaesthesia there is evidence of only a small rise in the blood sugar content.

7. Absorption from rectal glucose salines does not lead to any constant change in the blood sugar readings.

We have to acknowledge our indebtedness to Professor John Fraser and Mr. George Chiene for permission to carry out this investigation of their cases, and to Professor Murray Lyon, in whose laboratory the chemical estimations were made. The expenses for this study were borne by a grant from the Moray Fund.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PRESSURE NEURITIS OF THE DEEP PALMAR BRANCH OF THE ULNAR NERVE.

I WAS most interested in reading, in the *Journal* of January 19th (p. 98), Dr. Wilfred Harris's communication under the above heading and his account of two cases, since during the past two years I have met with no fewer than four similar cases. Also, as with Dr. Harris, I was unable to find an adequate description of the condition in the literature of nerve injuries or neuritis. In two of my cases the exciting cause was fairly obvious—both were young men and keen motor cyclists. In both cases the right hand was affected, and, as with one of Dr. Harris's cases, the undue pressure had been brought about by gripping the handle-bar termination too tightly in the effort to control vibration. In the two other cases—one a lady aged 63 (right hand) and the other a medical man aged 57 (left hand)—it was difficult to determine with certainty the exciting cause. At the same time, the lesion, of sudden onset, was so clearly limited to the deep branch of the ulnar nerve that it was scarcely possible to imagine a cause other than trauma by pressure—especially after one had seen the two previous cases. The paralysis was limited entirely to abduction and adduction of the three outer fingers, adduction of the little finger, and adduction of the thumb. There was no loss of sensation in the ulnar area, while abduction and opposition of the thumb and little finger were unaffected. In the first case pressure might have been caused by the use of a garden trowel, and in the second by holding too tightly the handle-bar cork of an ordinary bicycle. Although the pressure was applied intermittently over a long period, the actual onset of the paresis was sudden in all four cases, occurring during the course of the night or one evening.

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Physician to the Metropolitan Hospital and to the West End Hospital for Nervous Diseases.

CEREBRAL ANGIOSPASM.

I RECENTLY had under my care an interesting case of fugitive paralysis of the arm, presumably due to spasm of a cerebral arteriole. Since I find very little on the subject in the textbooks, or in contemporary medical literature, I venture to place it on record.

My patient was a medical practitioner, aged 71, of fairly good general health and careful dietetic habits. There was no history of syphilis. The blood pressure before the attack was 170 mm. maximum, 90 mm. minimum. At the termination of a two months' holiday in Europe, during which he may have eaten a little more than his usual restricted dietary, he was gathering figs with the head thrown back at an acute angle. He suddenly became aware that he had lost all movement in the left arm from the shoulder down to the fingers. He said he felt a little "funny" on the right side of his head when this happened, but neither the tongue nor the corresponding leg was affected. Movement began to return in the hand in the course of a quarter of an hour, and the paralysis had quite cleared up an hour or so later, leaving only a large anaesthetic patch over the deltoid muscle. This persisted for ten days or so, when it also cleared up, but an area of dysaesthesia (numbness and tingling) appeared on the left side of the occipital region. Six weeks later no trace remained. The patient mentioned that he had been suffering from precordial pain and, more recently, shortness of breath on effort, especially after eating. For the last six years he had noticed an intermittent limp on both sides, pointing to partial obstruction of the tibial arteries. The heart sounds were normal. There was nothing abnormal in the urine.

For several years past he has from time to time had scotomata in one or other eye. Sometimes the area obliterated was so extensive as to amount to blindness in one eye, but more often it was merely a large black or greyish patch in the field of vision. This lasted from a few minutes to half an hour, and then gradually cleared up; nothing abnormal was seen between whiles with the ophthalmoscope. This occurred mostly when travelling—that is to say, when his digestive organs had not had fair play owing to changes in his habits of life. This ephemeral occurrence was also no doubt due to spasm of a retinal arteriole.

O. K. Williamson[1] has recorded three cases of transient hemiplegia in elderly subjects, which he attributes to arterial spasm not lasting long enough to cause necrosis of

[1] *Journal of the Medical Association of South Africa*, May 26th, 1928.

the cerebral area involved. In such cases, if cerebral haemorrhage and embolism can be excluded, there remains only arterial spasm to account for the fugitive paralysis. We are familiar with angiospasm in "dead finger" which lasts for half an hour or more, but since it does not entail any permanently injurious consequences it does not attract much attention. A more impressive instance of spasm is ophthalmic migraine, an essentially spasmodic affection in which the patient may develop hemianopsia or even aphasia, which disappears without leaving any trace.

One feature of these cases of arterial spasm is that the symptoms, instead of progressing from bad to worse, are very variable, more or less "undulating," so that it is very difficult to formulate even an approximate prognosis. If the spasm subsides in good time there may be no permanent disability, but prolonged spasm of an arteriole, damaged but capable under ordinary conditions of giving passage to the blood, is apt to set up necrobiosis of brain tissue or brain softening.

Apart from arterial spasm, or possibly with it, there may be perturbations of blood pressure, and I gather that more or less sudden variations of the latter may pave the way to brain softening far more than mere hyperpiesis. A sudden fall of pressure consequent upon free blood-letting may have a very detrimental effect on the cerebral circulation, causing ischaemia of a territory already inadequately irrigated. According to Chavany and Berard-Dellestable[1] the harmful effects of these sudden variations of pressure only obtain in respect of arteries that are the seat of disease, so that one never meets with cerebral symptoms consequent upon the sudden fall of pressure associated with colloidoclasic shock (intravenous injection of metallic colloids). Nevertheless it is presumably advisable to abstain from "shock" treatment in elderly people.

In cases of diabetic coma or threatening ictus one is very prone to resort to free blood-letting, but while this may not be inopportune in presence of cerebral haemorrhage with high blood pressure, it is quite otherwise in cases of spasm or thrombosis in the production of which hyperpiesis plays an insignificant part.

Syphilis is, of course, a frequent—possibly the most frequent—cause of impediment to cerebral circulation, and the possibility of this origin must always be borne in mind.

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IDIOPATHIC HAEMORRHAGE IN THE NEWBORN.

DR. G. H. ROBERTS's interesting memorandum on idiopathic haemorrhage in the *British Medical Journal* of January 12th (p. 68) tempts me to report a similar case of mine, which occurred a few weeks ago.

On December 13th, 1928, a primipara gave birth to an apparently healthy male child. Thirty hours later the child had a severe attack of melaena neonatorum and haematemesis, leaving it very exsanguinated and collapsed. Treatment with horse serum, small doses of adrenaline hydrochloride, and four-hourly subcutaneous and rectal salines, followed later with a mixture containing gelatin and glucose, resulted in recovery.

Four weeks later, the intervening period being uneventful, and the child breast-fed, I was again called in on account of a "swelling of baby's arm." I found the whole of the right arm, from fingers to shoulder, very swollen and suggestive of a cellulitis; there was also a similar swelling of the scrotum. Close inspection revealed no signs of focal infection; the umbilicus was normal and the temperature was 103° F. Breast-feeding was immediately stopped and the child put on glucose and sterile water, together with calomel 1/6 grain four-hourly. Twelve hours later the child was admitted to the Victoria Hospital. During the next three days the oedema, which "pitted" on pressure, slowly spread down the back, commencing over the scapula and later involving the chest. The temperature ranged between 100° and 104° F. On the third day after admission the oedema of the arm and scrotum had abated to a certain extent, but had extended to the head, face, and neck when death supervened. Treatment given in hospital consisted of "glaxo feeds," which were readily taken up to a few hours before the end, castor oil, and hydrarg. cum creta. Local applications of heat in the form of fomentations were applied to the arm. No necropsy was performed.

The most feasible explanation seems to be some inborn error of metabolism, but it would be interesting to hear the opinions of others on the subject.—I am, etc.,

Blackpool. HERBERT GEARY, M.R.C.S., L.R.C.P.Lond.

[1] *Paris Médical*, March 31st, 1928.

Reports of Societies.

THE CONSERVATIVE TREATMENT OF ECLAMPSIA.

AT a meeting of the Edinburgh Obstetrical Society on January 9th, with the president, Dr. HAIG FERGUSON, in the chair, DRS. DOUGLAS MILLER, ELSIE CROWE, and H. S. DAVIDSON contributed jointly a survey of 159 cases of eclampsia treated by conservative methods.

Dr. Miller began by referring to the discussion on the prognosis and treatment of eclampsia which formed the principal subject for consideration at the Congress of Obstetrics and Gynaecology in Liverpool in 1922. At this meeting the advantages of conservative over more radical methods of treatment were so convincingly emphasized by the relatively low mortality in the Dublin group of cases that the Dublin method of treatment, with minor modifications, had been employed as a routine in the Edinburgh Royal Maternity Hospital during the period 1923–27 inclusive. Dr. Miller's contribution presented a survey of 159 cases of eclampsia treated by this method, and comprised an analysis of such symptoms and signs as coma, the number of fits, the degree of oedema, the degree of albuminuria, blood pressure, pulse rate, and temperature in their relation to prognosis. The findings obtained confirmed in large part what was already believed in regard to the prognostic significance of these phenomena. An important exception, however, was noted in regard to blood pressure readings; in the series of cases studied the mortality ratio had proved to be in inverse proportion to the height of the blood pressure. When the systolic blood pressure at the time of admission to hospital was under 150 mm. Hg a mortality of 27 per cent. was recorded; in a second group with blood pressures ranging from 150 mm. to 180 mm. the mortality ratio was 14 per cent; while in cases in which a blood pressure of over 180 mm. was noted the mortality rate was 13 per cent. No satisfactory explanation could be offered for figures so much at variance with what was generally believed in regard to the serious prognostic significance of high blood pressure in eclampsia. It was found that while the absence of oedema had been associated with a mortality of 24 per cent. the presence of this in marked degree had carried with it a death rate of over 30 per cent., a moderate degree of oedema being much less serious than either extreme. Further investigation showed that in each of the four fatal cases in which oedema had been absent death had resulted directly from intense toxaemia, whereas in the twelve fatal cases in which oedema had been extreme, pulmonary complications had contributed largely to the fatal issue in five cases, death in four of these being due directly to pulmonary oedema. It would appear, therefore, that while the absence of oedema was a sign of great danger, possibly because it implied concentration of toxins in vital tissues, extreme oedema carried with it a special risk of pulmonary involvement. The foetal and neo-natal deaths numbered 65, giving a mortality percentage of 39.1. The exclusion of 28 cases in which the child was delivered before the thirty-sixth week of pregnancy, and of 14 cases in which the child was believed to be dead at the time of the patient's admission to hospital, gave a reduced foetal and neo-natal death rate of 18.5 per cent. There were 28 maternal deaths in the total series, a mortality ratio of 17.6 per cent. This figure compared with a mortality of 25 per cent. during the ten-year period 1912–21. The causes of death, confirmed in 22 cases by autopsy, were as follows: toxaemia 13 cases, pulmonary complications 7 cases, cerebral haemorrhage 6 cases, septicaemia and acute heart failure one case each. In conclusion, the speaker said that while in general the intensity of toxaemia could be reliably gauged by the extent and severity of the signs and symptoms specially considered, it was necessary to bear in mind the notoriously uncertain course which any case of eclampsia might follow, so that even when the omens were favourable response to treatment might suddenly and apparently without reason fail and hopefulness be replaced by grave anxiety. In particular it had been found in this series that the occurrence of cerebral haemorrhage had appeared to bear little relation to the severity of the disease. In only one of the six cases

in which death was due to this complication had the toxaemia been so severe as of itself to make the prognosis anxious, nor in any of them had the systolic blood pressure exceeded 180 mm. In a haemorrhagic toxaemia of this nature the occurrence of haemorrhage in the brain, or, on the other hand, in some less vital tissue such as the liver, would appear to be largely a matter of chance, and an accident, accordingly, over which the attendant had little or no control.

Dr. ELSIE CROWE then gave a short summary of the chemical findings in 86 cases of eclampsia. As a result of these investigations she was led to the following conclusions. Almost all cases of eclampsia sustain renal damage, as shown by (1) a diminished power of excretion and of concentration of urea (MacLean's urea concentration test), and (2) a high blood urea content. The concentrating power of the kidney varies at the different stages of the illness, and may greatly improve as the patient's general condition responds to treatment. The normal blood urea in the second half of pregnancy is about 16 mg. per cent., while that of the average eclamptic patient is twice as high (32 mg. per cent.). She considered that the higher the blood urea figure rose the worse was the prognosis in most cases. Tests of hepatic function were of doubtful value; the large majority of cases showed definitely impaired excretory power when tested by Rosenthal's method (intravenous injection of a known quantity of phenol tetrachlorphthalein, and the estimation of the amount of dye removed from the blood stream by the liver in a given amount of time). Almost 50 per cent. of cases of eclampsia had positive van den Bergh and Fouchet reactions. These results had apparently little bearing on the clinical aspects of eclampsia, and were of no great prognostic value.

Dr. H. S. DAVIDSON concluded the joint contribution by referring to the high mortality in cases with low blood pressure; he thought this might be due to a profound affection of the myocardium by the toxaemia, thus lowering the blood pressure. The small number of deaths from heart failure associated with shock and collapse bore out the importance of refraining from interference in the ordinary case of eclampsia. He commented on the number of deaths from pulmonary oedema, and wondered whether oedema was directly traceable to the use of ether as an anaesthetic, or was merely part of the general oedema. It became a question whether, when an anaesthetic was required, chloroform should be given, as suggested by Stroganoff, or whether one should adopt some other form of narcosis, such as gas and oxygen. The Stroganoff treatment was very difficult to conduct in hospital; he could find no good purpose served by venesection which could not be as efficiently served by veratone. Dr. Davidson referred to the treatment of eclampsia by intravenous injection of magnesium sulphate, which he had been trying for the last six months with good results, although up to date only eight cases had been treated. Magnesium sulphate acted as a sedative and anticonvulsive agent, and produced a marked elimination by causing a large increase in the urinary output; this was followed by a marked diminution of oedema, which was probably general and affected the brain as well as other tissues. Dr. Davidson finally considered the treatment of the fulminating type of eclampsia, and mentioned the bad results obtained by any conservative method of treatment in such cases. He thought that by dealing with these cases by Caesarean section the prognosis might be improved.

DIFFERENTIAL DIAGNOSIS OF SPLENOMEGALY.

AT a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on January 11th, with the president, Dr. ROWLETTE, in the chair, Dr. J. LAIT read a communication on a case of splenomegaly, and showed the patient.

Dr. Lait said that the chief features of the illness were enlargement of the spleen with increasing anaemia; a low red cell count and a low haemoglobin percentage, with a colour index of about 1; the presence of "latent icterus" with a blood bilirubin of from 2.5 to 4.0 units; and a white cell count, when the patient first came under Dr. Lait's care, of about 15,000 per c.mm. The comparatively high white cell count and the marked splenic tumour were by themselves sufficient to rule out the diagnosis of pernicious anaemia, but earlier in the year the diagnosis of Banti's disease had been suggested. Study of the blood picture made it possible to refute this diagnosis, the blood film showing constantly almost every type of red cell and white cell precursor; moreover, the progress of the disease and its clinical features were unlike those of Banti's disease at any stage. Dr. Lait had no doubt that the case was a myelogenous leukaemia of the type described as a leukanaemia. Some authorities had discredited the existence of any such condition as a true intermediate form, but Dr. Lait brought forward cogent arguments in support of the aptness of the term. Dr. Lait's case notes of this patient afforded an interesting study in careful blood histology, as well as demonstrating the influence for good or evil of *x*-ray treatment on this rare disease. He concluded his communication with a short note on reticulocytes, in which he described the most recent theories of red cell formation, mentioning the place assigned to the reticulocyte in such schemes; the technique of staining was explained, and Dr. Lait insisted that *intra vitam* staining should become a recognized procedure in clinical work, on account of the prognostic importance of the reticulocyte in the liver treatment of pernicious anaemia.

The PRESIDENT, in discussing this paper, emphasized the importance of such careful study of diseases of the blood-forming organs in view of recent advances in therapeutics. Dr. L. ABRAHAMSON mentioned a case of myelogenous leukaemia which bore a close resemblance in its white cell count to that of Dr. Lait's patient.

TRAUMATIC RUPTURE OF THE URETHRA.

AT a meeting of the Section of Urology of the Royal Society of Medicine on January 24th, with Mr. SWIFT JOLY in the chair, a paper was read by Sir WILLIAM DE COURCY WHEELER of Dublin on traumatic rupture of the urethra.

Sir William Wheeler said that this was a rare accident, and so few cases had come under the care of any one surgeon that no settled form of treatment seemed to have evolved. Rupture was far more common in the bulbous portion of the urethra than in any other part. In France the accident was considered to be most frequent in young men, but he did not think that was the case everywhere; in the six cases on which his paper was based the average age was 42. Sometimes in this injury extravasation occurred in the anal region, the ischio-rectal fossae, and the thighs. When the rupture was situated well in front of the triangular ligament there was nearly always a perineal haematoma, and the patient was unable to gratify an intense desire to pass water. There was severe local pain. For the first several hours, fortunately, reflex spasm of the compressor urethrae prevented extravasation of urine, thus reducing the mortality. When the urethra had been only partially severed the bleeding was likely to be more profuse and continuous than when the rupture was complete. Severe traumatic stricture might follow injury without rupture. When associated with fractured pelvis the urethral rupture was more likely to be above the triangular ligament, in the region of the apex of the prostate. A ruptured bladder, being empty, could not be palpated. Usually the extent of the injury found to be present at operation was greater than the signs and symptoms immediately after the accident had led the surgeon to suppose; this fact strengthened the call for prompt operation. When a black patch appeared on the penis it probably meant that the whole corpus spongiosum was infiltrated with urine. Extravasation in recent traumatic cases had a better prognosis than in old cases; as a rule patients in the first instance were in good health when the accident happened. If operation was delayed, then (assuming the patient to be still alive) the parts became riddled with sinuses and urinary fistulae. The speaker urged the desirability of agreeing upon a uniform early treatment in these cases. An operation should not be approached hurriedly, and in this class of case very special precautions should be taken to ensure asepsis. He described in detail his own procedure. The literature showed general agreement as to the need of immediate suprapubic cystotomy in fresh cases of the accident, followed by retrograde catheterization.

Mr. RALPH THOMPSON commented on the very small proportion of urethral stricture cases which were traumatic, the average at two large hospitals being about 3 per cent. of the total urethral strictures. He urged the importance of operating to deal with the urethra as soon after the accident at possible.

Mr. FRANK KIDD mentioned the analysis he made, in 1921, of 57 cases of this accident treated at the London Hospital. That all except one of these patients remained alive indicated that the accident was not a real menace to life. From a careful study of cases he had arrived at the conclusion that the real origin of the stricture was pulping of the tissues. He was a strong advocate of a prompt suprapubic incision, under anaesthesia, followed by retrograde catheterization.

Mr. FOWLER WARD said that these ruptures in children who were brought quickly under care were not usually severe; the serious cases were in heavy men who were not seen for some days after the accident and who had not passed any urine since the accident. He much preferred silver to rubber catheters. Mr. WINSBURY WHITE reported a case of fractured pelvis, with partial rupture of the urethra; the result of treatment had been very satisfactory. Mr. CYRIL NITCH agreed with the opener's contentions, and described cases he had seen. Others who spoke in support of the opening thesis, and quoted cases, were Mr. HUGH LETT and Mr. G. E. NELIGAN; Sir WILLIAM WHEELER briefly replied.

POST-OPERATIVE ACIDOSIS.

AT a meeting of the Anaesthetic Section of the Royal Society of Medicine, on February 1st, Dr. R. D. LAWRENCE opened a discussion on post-operative acidosis.

Dr. Lawrence said he had purposely used the term "post-operative" so that any blame for the occurrence of the condition due to surgical manipulation could be included in the discussion. As he was neither a surgeon nor an anaesthetist he could claim to be impartial in the marshalling of his facts and deductions therefrom. The term "acidosis" was a loosely used one, and covered more than one condition. As applied to post-operative conditions it covered the presence of ketones and acetone bodies in the urine. These could be present without marked diminution of the alkaline reserve. The human body was always alkaline, but all its activities led to the production of carbonic acid equivalent to 300–400 c.cm. of concentrated hydrochloric acid. The alkalis were, however, always in excess. The mechanism of neutralization was interesting. If acid was added to water there was a marked change in the amount of free hydrogen ions. These ions determined the reaction of a fluid. If, however, the acid was added to blood there was no increase of the hydrogen-ion content of the blood, owing to the presence of what were known as "buffer substances." The chief of these was sodium bicarbonate, which formed the alkaline reserve in the blood. This salt was acted on by hydrochloric acid to form common salt, carbon dioxide, and water. The alkaline reserve in the blood varied from 55 to 75 volumes per cent. Ketosis could be present without definitely changing the ratio of the alkaline reserve. Chloroform, ether, and nitrous oxide all definitely reduced the alkaline reserve. The fall was rarely more than 10 volumes per cent. This began very soon after inhalation, and the ratio slowly returned to the normal after the second day. Ketonuria was much less frequent the day after operation, whereas acidosis was almost constantly present. The amount of ketones formed was so slight that it in no way represented the acidosis. Chloroform most frequently produced ketonuria, but spinal and local anaesthetics also produced the condition. Novocain decreased the alkaline reserve by five volumes per cent. in about half the cases investigated, and this occurred mostly in abdominal operations under novocain. Shock and fractures produced acidosis, and the condition was increased in nervous and anxious patients. It was difficult to explain the mechanism of the production of acidosis; the factors were complex and probably multiple. Sleep produced acidosis, and this was due to the insensitiveness of the respiratory centre at night, and its failure to respond to external changes. Under anaesthetics the respiratory centre was more depressed than in sleep. Anoxaemia produced acidosis. The glycogen store of the liver had been definitely depleted by anaesthesia. In normal individuals acidosis was of no importance; it could not be prevented, but it could be minimized. In patients with acidosis and no ketosis—for example, chronic nephritics and those suffering from wasting diseases—operations should be carried out as far as possible under spinal anaesthesia, and large doses of sodium bicarbonate, up to eight drachms a day, should be given for a few days before operation. In patients with ketonuria but no acidosis the position was more serious, since operation would increase the ketosis, especially if there was sepsis, and might lead to vomiting and liver damage. Chloroform was dangerous, as it might cause fatty degeneration. Ketonuria was a danger signal which we could not afford to ignore. The operation should if possible be postponed, and abundance of carbohydrate given by the mouth or intravenously. The ketonuria should then cease in from twenty-four to forty-eight hours. Insulin need not be given unless the ketonuria was very severe. In cases which did not brook delay nitrous oxide and oxygen, with or without ether, might be given, but chloroform never. In the case of diabetics, carbohydrates and insulin should be given, 20 units of insulin with 20 grams of sugar four-hourly. When possible a spinal anaesthetic should be given, but nitrous oxide, oxygen, and ether did not usually cause ill effects.

Dr. P. J. CAMMIDGE, while agreeing in the main with what Dr. Lawrence had said, thought that he had not sufficiently stressed the importance of the body cells. Difficulties ensuing from acidosis were due, not to the acidosis, but to changes in the cells themselves. Clinical changes were produced by alterations in the cells of the body. Variations in the water retention of the tissues brought about acidosis. Thus we found (1) acidosis from anhydraemia; (2) acidosis from over-production of normal acid products—for example, nephritis; (3) acidosis resulting from the removal of the alkaline bases of the cells; and (4) acidosis due to changes in the osmotic pressure between the cells and the plasma. A patient might have alkalosis after operation—for example, intestinal obstruction with vomiting. The chemical test for this condition was the finding of traces of acetone in the urine but an absence of chlorides. In these cases sodium chloride should be given with glucose. A special type of case was met with in children suffering from cyclic vomiting with headache. In this type the condition was inherited and the liver was below standard. Should operation be necessary in such a case it was best to substitute oatmeal for glucose in the preparation of the child for operation.

Professor E. C. DODDS said that in his experience acidosis was extremely rare, the chief causes being diabetes and starvation.

Dr. F. E. SHIPWAY had rarely seen acidosis in serious form. In these cases chloroform was to be avoided unless the patient had received careful preparation.

Mr. ZACHARY COPE cited cases in children in which, after operation under chloroform for appendicitis, vomiting, icterus, pallor, sweet-smelling breath, acetone in urine, delirium, screaming, and eventually death with central nervous irritation had ensued. He now insisted on ether being given in all such cases, and there had since been no fatalities due to acidosis.

VERTIGO.

AT a meeting of the Section of Otology of the Royal Society of Medicine on February 1st, with Mr. SOMERVILLE HASTINGS in the chair, a discussion took place on the nature of vertigo.

Mr. SYDNEY SCOTT, in opening, said that a hundred years ago the subject of vertigo resembled a tropical jungle, and even now there still remained large areas to be cleared. Hughlings Jackson was responsible for the definition of vertigo as a state of consciousness, attributable to incoordination of afferent impulses connected with the vestibular system. Destructive lesions of the labyrinth or of vestibular tracks were either partial or complete. It was in the early stage, where destruction was partial, that the patient suffered from vertigo; when the destruction was complete he suffered from deafness. If both ears were stimulated at the same time and in the same way there

was no vertigo, but if one side was stimulated, say, by irrigation with water at a different temperature from the other, vertigo occurred immediately. The sensitiveness of the labyrinth differed in different individuals, and was a very important factor. The clinical manifestations of vertigo were so widespread that sometimes the general practitioner was prevented from recognizing the possible cause. He had seen patients with attacks associated with vomiting who had had a gastro-jejunostomy done, or an appendix removed, when the real cause of the attacks was vertigo. Some patients complained of scalp pain; in others visual disturbances were an outstanding feature. A rare difficulty was diplopia during the attack. Staggering gait, vasomotor and cardio-vascular symptoms, pallor, flushing, sweating, dyspnoea, fainting, were all associated with vertigo, and he had come across attacks followed by violent diarrhoea. With regard to objective examination, he had found that a number of patients who had vertigo were undoubtedly the victims of some nasal trouble. Vertigo was associated with acute, non-perforative otitis media, with chronic otitis media, with labyrinthine fistula, with otosclerosis, and post-suppurative adhesions, with rhinitis, ethmoiditis, sinusitis, nasal polypi, post-nasal catarrh, and dental infections. Some years ago he had a patient with vertigo with no obvious cause, but it was eventually found that he had a strong Wassermann reaction. One had to bear in mind the possibility of syphilis in many of these cases. The principles of treatment were, first to seek the cause, which, if peripheral, might be removed by operations on the ear, nose, throat, or even by extracting dead teeth; if central, by intracranial surgery, decompression, or by neuropathic medical treatment.

Dr. LOWNDES YATES followed with an epidiascopic demonstration of some graphic records of instability, results of the past-pointing test, illustrative of certain cases which had been referred to by Mr. Scott.

Mr. A. R. TWEEDIE made a reference to the work of Andreas Högyes, and showed some pages of his book which indicated at what an early stage he had anticipated modern otology, although for a long time his work, because it was written in Magyar, remained unappreciated. Mr. Tweedie passed in review the rotation, caloric, and galvanic tests. He criticized the rotation test in certain respects, while affirming his belief that it should be continued in practice. He found the caloric and galvanic tests more valuable, though they, too, presented problems as yet unanswered; for example, neither of them was a definite test for the hysterical case. All cases of vertigo had an otitic factor, but the cases might be divided into two groups, in one of which the otitic factor was predominant (this group including inflammatory lesions and new growths), while in the other the factor was incidental. He brought forward seven cases belonging to the second group, in all of which there was asymmetry of auditory function and of function in the peripheral vestibular organs, and gave the results on these cases of the three tests named.

Mr. E. A. PETERS showed and described a case of a man, aged 74, who, in 1914, suffered from severe giddiness, and was often unable to cross a room. As the symptoms did not yield to treatment the left external semicircular canal was opened and the dura mater in Trautmann's triangle exposed. One end of a fine silkworm-gut suture was passed into the canal and the other between the dura mater and cranium. Relief of giddiness followed the operation. There was still (fifteen years afterwards) no giddiness, and the man could climb about on a scaffold. The drainage had been very effective, and the hearing was relatively better.

Mr. ERIC WATSON-WILLIAMS said that in true vertigo—that is, a condition in which the patient had a sense of rotation—there was something wrong with the ear or its intracranial connexions; if the patient merely had sensations of giddiness these might be due to the ear, no doubt, but they might be due to other things—to anaemia, constipation perhaps, or even atmospheric conditions. Often people were sent with a story of giddiness and sickness, and the inference was drawn that they got giddy because they were sick; but if there was true vertigo these people were sick because they were giddy—that is to say, to start with the ear was wrong. In the nineties Gowers said that after thirty years he had been forced to doubt whether there was true vertigo of gastric origin. Until a year ago he had been able to say that he had cured the last three "cerebral tumours" sent to him by removing wax from the ear. He had one case with facial paralysis and intense vertigo from which he had removed about half an ounce of wax from an enormous cavity, and the man got perfectly well; the case was sent in as meningitis. The most intense and lasting vertigo he had ever seen was in a man who, during his attacks, was unable to lie on the floor; he rolled across the floor unless he could clutch hold of something. Vertiginous cases which had particularly interested him lately included one or two in which he had been misled, and which turned out subsequently to be encephalitis. Encephalitis, apparently, occurred sometimes as a simple vestibular disturbance. In most types of encephalitis the vestibular nucleus was specially susceptible, and one might get auditory disturbance at the same time. He wished he could be told of some really reliable method of discriminating between a lesion of the labyrinth and a lesion of the brain—some method which could be carried out at the bedside without any elaborate test. He could not say that the galvanic test had helped him in this respect.

Mr. G. J. JENKINS congratulated Mr. Scott on establishing, what he had been teaching for years, that middle-ear affections might cause vertigo. The ear might be very seriously diseased with the labyrinthine affection, and yet the vertigo might be due to middle-ear changes, and not so much to the labyrinthine condition itself. The speaker mentioned one or two cases in children where removal of tonsils and adenoids cured the condition of giddiness.

Dr. STACEY WILSON pointed out that vertigo was an important cause of neurasthenia, especially in a lesser degree. As a physician he had found it of considerable interest to distinguish severe degrees of vertigo by the test as to whether the patient felt level in bed or not. If the patient felt the bed untrue it was a severe case.

TREATMENT OF EXOPHTHALMIC GOITRE.

AT a meeting of the Manchester Medical Society on November 7th, 1928, with Dr. R. W. MARSDEN, the president, in the chair, Dr. C. S. D. DON read a paper on the treatment of exophthalmic goitre.

Dr. Don compared the three lines of treatment at present adopted in cases of exophthalmic goitre—namely, iodine therapy, *x*-ray therapy, and operative procedures. Progress was estimated by comparing the basal metabolic rate, the weight, and the pulse in each case, before and after treatment. It was found that iodine caused a temporary diminution of the basal metabolic rate and the pulse and a gain in weight. The fall in the basal metabolic rate and pulse lasted for about a month, in some cases longer, while the increase in weight in nearly all cases continued for about five months. Iodine by itself could not cure exophthalmic goitre; a second course had less effect than the first one. Dr. Don said that a number of patients who had had *x*-ray therapy for periods over a year were examined repeatedly at intervals of three months, the basal metabolic rate being determined on each occasion; out of a total of thirty cases improvement or cure had been found to occur in 54 per cent.; in 27 per cent. the basal metabolic rate and pulse rate had returned to within normal limits, and this was regarded as a cure. Operative procedures were then considered, and attention was drawn to the value of iodine in preparing patients for operation. Of twelve cases examined not less than eight months after the date of operation, it was found that a fall in the basal metabolic rate and pulse to normal, accompanied by an increase in weight, had occurred in nine. Eighteen cases were examined before iodine was given, after administration, and two weeks after operation. As judged by the basal metabolic rate and pulse rate, cure had occurred in 85 per cent. Dr. Don advocated *x*-ray therapy without iodine administration for six months; after this, if the basal metabolic rate and pulse had not diminished considerably the patient should be given iodine, followed by an operation. Cases with basal metabolism of over *plus* 35 per cent. should be treated by preliminary ligaturing, while those in which the basal metabolic rate was below *plus* 35 per cent. should have four-fifths of the goitre removed by thyroidectomy.

GONORRHOEA IN THE FEMALE.

AT a meeting of the London Jewish Hospital Medical Society, held on January 17th, Dr. S. WOLFF opened a discussion on the treatment of gonorrhoea in the female. The speaker remarked that too little attention was given to this subject, considering the many devastating complications gonorrhoea was prone to set up in women. There was no generally accepted line of treatment; each treatment centre had its own routine, a lack of unanimity surprising in a disease so ancient and widespread. The fault was not so much with those in charge of clinics as with the patients themselves. It was very difficult to get a patient to realize the seriousness of the disease and the necessity for prolonged treatment. Many patients underwent no treatment at all, regarding the disease as a "chill" and the discharge as normal. It would help matters considerably if gonorrhoea in the female were treated only by women doctors; a better understanding between the doctor and the patient would be arrived at. No organized campaign against gonorrhoea could be successful if the problem of prostitution was not faced. The prostitute was the main carrier, and the treatment of this type of patient would probably become more effective if it were left to women doctors. At present it was left entirely to the goodwill of the prostitute whether she persevered with treatment, or even underwent any at all. If society could not abolish the prostitute it had to cultivate its sense of self-preservation. In the case of married women much education was required to make them realize that vaginal discharges were not normal concomitants of married life. Too many women were chronic invalids from neglected gonorrhoea.

THE LENS CAPSULE AND ACCOMMODATION.

AT a meeting of the Optical Society on January 17th, Mr. E. F. FINCHAM read a paper on the function of the lens capsule in the accommodation of the eye.

Mr. Fincham said that although abundant evidence was now available in support of the general principle of Helmholtz's theory of accommodation, no definite explanation had been given of the formation of the "lenticonus" discovered by Tscherning, which led him to challenge that theory. In 1925 the speaker had suggested that the varying thickness of the capsule covering the anterior surface of the lens would account for the type of surface which Tscherning had depicted. Mr. Fincham described the determination of the form of the anterior surface of the lenses of freshly dead animals, by photographic records of the image reflected from the surface. The lenses of a number of different species were examined and records were made when the lens was held under tension by its normal suspensions and also when the suspensions were removed. The thickness of the capsule in each case was then measured microscopically. The results showed that in primates the anterior surface of the lens assumed a somewhat conical form with an area of increased curvature in the centre, when the suspensions were severed. The capsule of the primate lens had a zone of increased thickness surrounding a central thin area. Photographs of the profile view of a monkey's lens, which was removed from the eye and suspended in oil, revealed it in the typical accommodated form. A similar view of the lens without its capsule showed a close approach to the unaccommodated form. The anterior lens capsule of animals of an order lower than the primates was found to be approximately uniform in thickness. The "lenticonus" was not found in these cases, and the removal of the capsule did not cause an appreciable change in the form of the lens. From these findings the theory was formulated that accommodation consisted of a relaxation of tension upon the lens by the contraction of the ciliary muscle as stated by Helmholtz. This relaxation allowed the capsule to press upon the lens substance and mould it into the accommodated form. In the unaccommodated state the tension under which the lens was held by its supporting fibres did not permit this compression. The unaccommodated lens substance was therefore in its unrestricted or natural form and not under compression as supposed in the Helmholtz theory.

Reviews.

DISEASES OF CHILDREN.

Diseases of Children,[1] by Garrod, Batten, and Thursfield, has earned for itself a place as a standard textbook, and for this reason the second edition, under the capable editorship of Dr. HUGH THURSFIELD and Dr. DONALD PATERSON, is extremely welcome. Like the first edition, which appeared in 1913, the present book has numerous contributors, thirty-six in all, each one chosen because of his particular knowledge of the subject about which he writes. As all the contributors, with the exception of Dr. Leonard Parsons of Birmingham and Dr. J. C. Spence of Newcastle, are or have been attached to London schools, the book may be taken as representative of London opinion on the subject of paediatrics at the present day. Like its predecessor, also, it is essentially clinical, and this is indeed fortunate. During the past decade research in paediatrics has been exceedingly active, particularly along biochemical lines and in the field of nutritional diseases. A repetition of this work is not, however, needed in such a book as this, since there is already a surfeit of smaller books each claiming to be of value in presenting the newer aspects of the subject to the already overtaxed physician. At the same time much new and valuable work of a clinical nature has been accomplished, and thus the editors were faced with the need for extensive revision. This has been most successfully achieved, the newer work receiving adequate recognition, while nothing of value has been omitted, with the possible exception of prematurity, which might with advantage have been discussed. The new edition follows almost exactly the arrangement of the original volume, with the addition of a short chapter at the end on diseases of the eye. This seems rather sketchy and incomplete, and might well have been omitted. The chapters on organic diseases of the nervous system and diseases of the muscles, by the late Dr. F. E. Batten and revised by Dr. W. G. Wyllie, and the chapter on diseases of bones and joints, by Sir Humphry Rolleston and Mr. H. A. T. Fairbank, are deserving of special attention for their completeness and lucidity; if they stood alone these contributions would establish the value of the book as a work of reference. Diseases of the ductless glands are discussed by Dr. E. A. Cockayne in a short and well-written chapter, which should prove of great interest to medical students and general physicians alike. The chapter on diseases of the newborn, by Dr. Langmead, has for the most part appeared unaltered. This is unfortunate. Certain statements here will not find general acceptance, particularly the remarks about haemorrhage of the newborn. This condition is a definite clinical entity which should not be confused with sepsis. Furthermore, the treatment, which is specific and so satisfactory, is only mentioned casually. The debatable subject of the feeding of infants has been dealt with by Dr. Edmund Cautley and Dr. Donald Paterson, and a large amount of useful information regarding the preparation and the virtues of the various foods is given. A specific method of feeding infants is outlined which should prove a ready guide for the practitioner. We note that, in the chapter on diseases of nutrition, lactic acid milk receives credit almost to the exclusion of other types of feeds—a view which many will find difficult to endorse. On the other hand, the well-recognized and valuable properties of protein milk (Finkelstein's *Eiweissmilch*) are given only scanty recognition. The chapters dealing with diseases of the heart, lungs, alimentary system, metabolism, etc., represent for the most part the usual current opinions, and on the whole are well balanced. The size of the volume has not been increased. It is sufficiently well illustrated, but contains only a meagre bibliography, or, in some chapters, none at all. This detracts perhaps from the value of the discussion of the more controversial subjects.

The book in this new form will carry on the reputation achieved by the first edition. It should appeal to a wide circle of readers, and we can recommend it with confidence to both students and practitioners. It is, in short, a worthy product of the London schools.

[1] *Diseases of Children*. Second edition, edited by Hugh Thursfield, D.M.Oxon., F.R.C.P., and Donald Paterson, M.B.Ed., M.R.C.P. London: E. Arnold and Co. 1929. (6½ × 9¾, pp. xi + 1106; 204 figures. 45s. net.)

DIGESTION AND GASTRIC DISEASE.

It is not surprising that Professor HUGH MACLEAN'S volume in his Monograph Series, entitled *Modern Views on Digestion and Gastric Disease*,[1] has rapidly passed into a second edition. In view of the very considerable discussion on gastric and duodenal ulcer during the past year, in which the author has taken a part, especially in his lecture on the efficiency of the intensive alkaline treatment of these ulcers (vide *British Medical Journal*, 1928, i, 619), this fresh edition is appropriate as tending to maintain a balance of opinion and as a counterblast to Sir Berkeley Moynihan's outspoken condemnation of ordinary medical treatment as "highly dangerous" in his Lloyd Roberts Lecture published on December 8th last. Professor MacLean has in no way modified his vigorous opposition to the belief that ulcer is an important etiological factor in gastric carcinoma, which he describes as "really an acute disease" usually arising *de novo*, and not in more than 5 per cent. of patients with previous ulcer or long-continued dyspepsia. Further, the microscopical evidence of malignant change in chronic gastric ulcers—islands and ingrowths of epithelium in fibrous tissue—is, with the support of Sir Bernard Spilsbury and Professor Dible, gravely impugned. The importance of a decision on the reputed etiological sequence of gastric ulcer and carcinoma is obvious; for if it is true, every gastric ulcer should logically be excised.

In the chapter on the physiology of digestion Professor MacLean discusses the occurrence of regurgitation of the duodenal contents into the stomach, described by Drs. C. Bolton and G. W. Goodhart in 1922, and the reduction of hydrochloric acid and the associated increase in neutral chlorides during digestion. The normal occurrence of duodenal regurgitation was accepted in the first edition of this work, but now he concludes that, though duodenal regurgitation may occur, it is an accident and is not in any way part of physiological digestion. This change of opinion is based on examination of the gastric contents and on experimental observations on an isolated Pavlov pouch in the stomachs of dogs; and as a result the deduction is drawn that the stomach has the power of secreting both acid and sodium chloride, but when the secretion of one is copious, that of the other is low, and that the stomach possesses an automatic mechanism for regulating the hydrochloric acid concentration, so that when it reaches about 0.2 per cent. the secretion of acid is reflexly inhibited while that of sodium chloride continues.

The clinical, chemical, and radiological aspects of gastric diseases, the last by Dr. Geoffrey Fildes, are clearly dealt with, and there is much sound practical advice in the sections on diagnosis and treatment. Thus in the differential diagnosis between the dyspeptic pain of gastric ulcer and gall-stones stress is laid on the sudden relief as incompatible with ulcer; and further, whenever a patient over 40 years of age complains for the first time of dyspepsia without apparent cause, cancer should be suspected.

SURGICAL PATHOLOGY.

THE *Précis de Pathologie Chirurgicale*,[2] by a number of French surgeons, now in its fifth edition, is designed for the use of students preparing for examination and for practitioners desirous of keeping their knowledge abreast of the times. As a summary of surgical pathology it must be considered to be tolerably complete, since its six volumes include nearly 5,500 pages. Unlike many works on this subject, it includes the pathology of the female genital organs; on the other hand, while tumours of the orbit are considered at length, the surgical affections of the globe of the eye find no place in the book. The subjects embraced under the term "pathology" are made to include etiology, symptomatology, pathological anatomy, diagnosis, prognosis, and treatment; the book is therefore practically a textbook of surgery, except that the technical details of operations are altogether omitted.

The general arrangement follows the usual plan adopted in such works; the first part deals with lesions generally, the second with lesions of the tissues, and the third with lesions of the various regions of the body. As with many French textbooks, classification is strongly in evidence, and the descriptions, instead of being continuous, are for the most part divided up into sections under headings and subheadings, a feature which certainly facilitates reference and renders a survey of the whole subject more easy. With regard to the classification of tumours, the basis adopted is that almost universally recognized—namely, tissue structure—but the nomenclature differs somewhat from our own in that the term "epithelioma" takes the place of "carcinoma." The authors state that the term "carcinoma" has reference merely to a particular variety of epithelioma in which the connective tissue is arranged in the form of alveoli, the stroma sometimes being abundant, as in scirrhous carcinoma. Such terms, they consider, have now merely a historical interest and should be discarded. It is unfortunate that some common system of classification cannot be adopted in all countries, but of this there seems little prospect at present, and the nomenclature tends rather to become more confused. For example, we now find the term "adamantinoma," which is defined as arising from vestiges of dental structures in the jaw, applied by some authors to growths arising at the base of the brain; "meningioma," to growths of any kind arising in the meninges: "folliculoma," to a peculiar epithelial tumour arising in the follicles of the skin; and "Schwannoma," to the plexiform neuromas occurring in von Recklinghausen's disease, and supposed by some to take origin in the sheath of Schwann. The authors' system of classification breaks down somewhat in placing the multilocular cyst of the jaw and the multilocular and papilliferous cysts of the ovary under the epitheliomas; they admit that this is illogical. It may be noted that lymphadenoma is placed among the neoplasms, a position which would probably not be accepted by the majority of pathologists in this country; in structure it seems more allied to the granulomata.

In a work embracing the whole domain of surgical pathology it is interesting to note to what extent the use of radium is recommended in the treatment of malignant tumours. Irradiation, it is stated, has shown some remarkable results in lymphosarcoma of the skin and cervical glands, and in the latter case appears to be preferable to operation. In certain inoperable and recurrent sarcomas of the maxillae, x rays and radium have induced retrocession of the tumours, and in some very malignant forms would seem to be the treatment of choice. But with regard to sarcomata of bone generally radium is said to be of little use, and x rays may increase the tendency to metastasis in the round-celled form; in some hands the spindle-celled form has been found more amenable. Amelioration in the course of sarcomas of the nasopharynx may follow the use of x rays, and irradiation is useful as supplementing operative treatment of malignant tumours of the nasal fossae. In sarcoma of the uterus x rays are stated to give results comparable to those following operation. A large proportion of cases of rodent carcinoma are curable by irradiation, and good results have been obtained in cancer of the lip when irradiation is followed by complete excision of the glands. In cancer of the tongue radium therapy appears to be recognized as a satisfactory alternative to operative treatment, although it is too early yet to judge of the ultimate results. The modus operandi is to perform a bilateral excision of the glands, destroy the tumour by irradiation, and finally apply x rays to the gland zone operated on. In cancer of the larynx, oesophagus, and bladder, irradiation is only mentioned here as supplementing operation or as a palliative. In the case of the bladder, apparent cures are reported from the use of radium, but extremely painful burns may result from the treatment. Similarly with regard to cancer of the vagina, much relief is obtainable, but there is a great tendency to the formation of fistulae and other infirmities. Radium has given good results in cancer of the penis, preferably followed by the application of x rays to the glands; and in cancer of the prostate rapid and marked amelioration is obtainable, equivalent to cure in old people.

[1] *Modern Views on Digestion and Gastric Disease.* By Hugh MacLean, M.D., D.Sc., F.R.C.P. Second edition. Modern Medical Monographs. London: Constable and Co., Ltd. 1928. (Demy 8vo, pp. x + 182; 29 figures. 12s. net.)

[2] *Précis de Pathologie Chirurgicale.* Par P. Lecène, L. Tixier, et M. Patel. Cinquième édition, entièrement refondue. Collection de Précis Médicaux. Tomes i, ii, iii, iv, v, vi. Paris: Masson et Cie. 1928. (Post 8vo; illustrated. Paper cover, 45 fr.; bound, 55 fr. each volume.)

In the hands of expert technicians the employment of irradiation in cases of cancer of the cervix uteri appears to have been more or less systematized; in early operable cases radium and operation appear to be placed on an equal footing; in cases of doubtful operability and in inoperable cases radium in association with *x* rays is indicated. It will thus be seen that while irradiation is recognized by the authors of this work as being a powerful therapeutic agent, there is no very strong recommendation, in the majority of cases, to employ it as the method of choice. In France, as in this country, the indications for its employment will no doubt become clearer when its technique is better understood.

The *Précis de Pathologie* is written with the usual clearness and conciseness that one expects to find in French literary works. The volumes are handy in size, and contain a sufficient number of good illustrations without being overburdened with figures. As a manual for students and practitioners its popularity is well deserved.

HISTORICAL ASPECTS OF TUBERCULOSIS.

IT is only occasionally that any work appears to which the epithet "monumental" may justly be applied, but *La Tubercolosi*[1] seems fully to merit that description. This work has been prepared and published by the sixth conference of the International Anti-Tuberculosis Union, under the auspices, and with the co-operation, of the Public Health Department of the Italian Ministry of the Interior. It has been planned on generous lines, and consists of four large, well-printed volumes, with considerably over 3,000 pages, so that its scale permits the comprehensive treatment of various aspects of the problem of tuberculosis. Professor Ettore Marchiafava contributes a preface, and the various sections making up the nine parts of this work have been contributed by other Italian authorities, with Dr. Alessandro Messea, director-general of public health, as editor. As an example of the method followed the composition of the first part may be indicated; this section of the work, by Professor Guglielmo Bilancioni of Pisa, deals with the historical development of our knowledge of tuberculosis, and comprises a general survey, occupying some 140 pages, followed by a chronological exposition occupying 350 pages. It is interesting to observe how, from the few obscure references—drawn mainly from the literature of archaeology and palaeopathology—relating to the disease in the period 2000–1000 B.C., the stream gathers volume with the development of knowledge in general, the rise of scientific medicine, and the multiplication of written records down to 1850, when a vast literature had been accumulated. Professor Bilancioni has drawn upon a wide field for his citations; between 1300 and 1400 A.D. there are, for example, quotations from Dante and Boccaccio, but in later years the references are, of course, almost exclusively to the writings of medical men. The same author contributes a similar historical review of laryngeal tuberculosis, extending his chronological exposition of this topic down to the beginning of 1928. Other parts deal with various aspects of tuberculosis—bacteriological, etiological, immunological, the relation of the disease in animals to that in man, mortality statistics, hospitalization, therapeutics, and legislation. Each section includes a full index and, where applicable, a chronological survey. In the part devoted to legislation the multitudinous citations are also given in alphabetical order under the 160 states to which they relate. The history of the various national and international movements, and of the conferences and publications associated with them, is also dealt with in detail.

It will be clear from what has been said that this work should prove of considerable value and interest to research workers and others concerned with the problem of tuberculosis, notably in its historical aspects. Its sponsors and contributors deserve every credit for the material support which has made its production possible, and for the patient and laborious work involved in its compilation. The four volumes received for review have been placed in the library of the British Medical Association.

[1] *La Tubercolosi.* Pubblicato per la VI Conferenza dell' Unione Internazionale contro la Tubercolosi. Volumes i, ii, iii, iv. Roma: Provveditorato Generale dello Stato Libreria. 1928. (7½ × 11½, vol. i, pp. xliv + 720; vol. ii, pp. 522; vol. iii, pp. 645; vol. iv, pp. 1172.)

A SURGICAL TEXTBOOK.

PROFESSOR W. WAYNE BABCOCK'S new *Text-Book of Surgery*[5] takes a distinguished place among the many general textbooks that are available. It is designed both for the student and the practitioner, as the author believes that, with the increase of clinical teaching and the declining importance of systematic lectures, the student must turn more to his reading for his theoretic background. Professor Babcock likes to be dogmatic in stating what he believes to be the truth at the moment of writing. He will still be dogmatic when he has progressed to an opposite standpoint, and the result is clarity of exposition. Except for a few specialties such as ophthalmology, otorhinology, and gynaecology, the whole ground of surgery is covered, including operative technique, and the survey seems to be extremely thorough. The personal note is often sounded in spite of the pervading brevity, and the reader is introduced in many places to Babcock's peculiarities of technique or instruments. This leads occasionally to a slight loss of balance, as when five pages are devoted to "Babcock's operation" for inguinal hernia, whereas the whole subject of the treatment of femoral hernia is dismissed in a few lines. One of the best features of the book is the quality of the very numerous illustrations, which have been carried out "in accord with the best traditions of the Max Brödel School."

SIGNIFICANCE OF THE COLLOIDAL STATE IN HEALTH AND DISEASE.

DR. AUGUSTE LUMIÈRE, who is the author of several smaller works on the same subject, has now brought out a book of more than 500 pages, *La Vie, la Maladie et la Mort: Phénomènes colloïdaux*,[6] giving a lengthy account of his thesis that healthy life depends on the maintenance of a normal colloidal state, and that destruction of this colloidal state is the cause of disease and death. Starting with this hypothesis six years ago, the author has made a large number of experiments which convince him that the problem has now been shown to be scientifically confirmed. When the structure of the colloids in the body is broken down a precipitation or flocculation occurs. In an animal intravascular injection of a fine suspension of an insoluble mineral, such as barium sulphate, produces acute symptoms resembling those of anaphylactic shock, which are explained as due to irritation of the endovascular terminations of the sympathetic. Experiments are also reported to show that traumatic shock is due to precipitation in the blood stream of colloids as a result of admixture of those liberated from the injured tissues with those of the blood plasma. When pathogenic micro-organisms produce precipitation in the blood stream, manifestations such as anaphylaxis, asthma, epilepsy, and acute disease result. Chronic disease is also explained by precipitation from the colloids, the cells of the various organs, and not the blood stream, being the site of the deposit. The various chronic diseases are determined by the organ or organs in which the precipitation chiefly occurs. The author unfortunately allows himself to express rather strongly his soreness that his views have not received more notice and acceptance.

NOTES ON BOOKS.

THE appearance of a second edition of Dr. SANSUM'S *The Normal Diet*[7] testifies to its success. This type of book is more popular in the United States than in this country; it seeks to place before the general reader certain problems commonly dealt with by the physician. While some of the subject-matter can be easily followed without any special knowledge, it remains a matter of opinion whether the lay public (and especially that section of it which is already seeking medical advice) benefits by a discussion of questions that do not yet admit of final or authoritative answer on the part of the medical profession; such matters Dr. Sansum has discussed in the section dealing with acidosis and high blood pressure. On the other hand, a grasp of the more general principles of diet might well save many patients a good deal of avoidable worry and discomfort.

[5] *Text-Book of Surgery.* By W. Wayne Babcock, M.D., F.A.C.S. Philadelphia and London: W. B. Saunders Co. 1928. (6½ + 10, pp. 1367; 1041 figures, 9 plates. 45s. net.)

[6] *La Vie, la Maladie et la Mort: Phénomènes colloïdaux.* Par Auguste Lumière. Paris: Masson et Cie. 1928. (Demy 8vo, pp. xxiii + 520; 55 illustrations, of which 17 are coloured plates. 45 fr. sans majoration.)

[7] *The Normal Diet.* By W. D. Sansum, M.S., M.D., F.A.C.P. Second edition. London: H. Kimpton. (Post 8vo, pp. 136. 6s. 6d. net.)

Those who wish to obtain a short account of the procedure adopted by a practitioner who uses tuberculin in treatment and diagnosis will find it in Lieut.-Colonel F. E. GUNTER'S *Tuberculin in Practice*.[8] Recognizing the danger of the indiscriminate use of this agent the author advises the novice to begin with the application of tuberculin liniment rather than injections; to confine himself at first to early cases of the disease; and to take every opportunity of attending an institution, such as a dispensary, where tuberculin is given. For diagnosis he suggests the modified von Pirquet procedure, and does not mention the more modern intracutaneous injection of tuberculin. His summary of Koch's investigation at the beginning of the book is too brief to be intelligible. In a postscript there is a portion of a letter received by the author from Professor Calmette, in which it is stated that "the favourable action of tuberculin is entirely due to the presence of phosphatoids and lipoids."

Professor FEER'S well-known book on *The Diagnosis of Children's Diseases*[9] was first translated into English by Dr. C. A. SCHERER in 1925, and a second edition of this translation now appears. The original translation was made from Feer's third edition, and it is not clear which edition has been used for this revised version now issued. It is stated by Dr. Scherer that "the advance of knowledge . . . even in two years has necessitated numerous additions," but whether these additions have been made in Zürich or Minnesota is not revealed. Little need be said here about the contents of the book except to recall that diagnosis alone is dealt with, and that the illustrations are a remarkable feature of a well-produced volume. Disorders of the skin are taken up at considerable length, and this particular section is one of the best in the book.

LERICHE and POLICARD'S book on *The Normal and Pathological Physiology of Bone*,[10] which has already been noticed in our issue of October 9th, 1926 (p. 639), has now been translated from the French by Professors MOORE and KEY of the University of Washington. It contains a new theory of bone formation, the main features of which are as follows. The osteoblasts are not bone producers, but bone destroyers, their function in this respect being feeble, although indirectly important owing to their capability of becoming converted into osteoclasts. Bone is not a tissue *sui generis*, but merely one of the many forms into which embryonic tissue may become transformed under varying conditions—such as areolar tissue, fibrous and tendinous tissue, mucous tissue, hyaline tissue, and cartilage. What the precise conditions are which determine the production of one form rather than another is a matter for further research, but in the case of bone formation an abundance of calcium salts in solution in the fluids of the part appears to be one of the necessary conditions. All bone formation takes place in membrane, endochondral ossification being no exception, since bone is not formed until the cartilage has been replaced by connective tissue. In an area in which bone formation is taking place the first change is a reversion of the connective tissue to the form of fibrillated embryonic connective tissue; next there is a marked proliferation of the fibrillae; this is followed by an exudate in the form of a semi-solid oedema, in which calcareous deposition takes place, the cells of the original tissue becoming imprisoned as passive bone corpuscles. The osteoblasts are regarded as connective tissue cells which have become hypertrophied under the influence of their altered surroundings, the change being regarded as to some extent a defensive action.

Modern X-Ray Technic,[11] by Dr. E. C. JERMAN, is very American in its construction, as well as in the manner in which the subject is dealt with and discussed. Apparently the author has the teaching of a large number of *x*-ray technicians, and has written mainly for them, and also in the hope that the book may be of use to technicians generally. The second section, which is illustrated, shows page by page a photograph of the part under examination, with the radiographic result; and, in addition, there is a short account of the technique, and a table of exposures in varying circumstances. The book is well presented, and contains a great deal of useful information, set out in a somewhat dramatic manner.

A Text-Book of Biologic Assays,[12] by P. S. PITTENGER, is a second edition of a book that was published as long ago as 1914, but the subject has changed completely since that date, and the present volume is practically a new work. In a work of this character the points of outstanding importance are that the methods mentioned should be described with sufficient detail to enable the reader to perform the tests himself, and that the standard of accuracy should be high. Unfortunately the book does not always fulfil these requirements. Important practical points are omitted in the descriptions of some of the methods, and also some methods that have been proved to be unreliable are included. The book concludes with three pages of references, but there are only three references to work done outside America since 1914.

In a pamphlet entitled *Clinical Surgery*[13] Mr. J. W. DOWDEN of Edinburgh has provided a useful collection of hints for junior students from which may be acquired as much of the wisdom of an experienced and skilful surgeon as can be conveyed by way of precept. How to observe, how to examine patients, and how to record the results of observation and examination (including in this last term anamnesis) may be learned from these few clearly printed pages.

[8] *Tuberculin in Practice*. By F. E. Gunter, D.S.O., M.D., Lieutenant-Colonel R.A.M.C.(Ret.). London: The Gregg Publishing Co., Ltd. 1928. (Demy 8vo, pp. ix + 102. 7s. 6d. net.)

[9] *The Diagnosis of Children's Diseases*. By Professor E. Feer. Translated by Carl Ahrendt Scherer, M.D., F.A.C.P. Second edition, revised. London: J. B. Lippincott Company. 1928. (Med. 8vo, pp. xiii + 551; 266 figures. 35s. net.)

[10] *The Normal and Pathological Physiology of Bone*. By R. Leriche and A. Policard. Authorized English translation by Sherwood Moore, M.D., and J. Albert Key, M.D. London: H. Kimpton. 1928. (6½ × 9½, pp. 236; 35 figures. 21s. net.)

[11] *Modern X-Ray Technic*. By Ed. C. Jerman. Saint Paul, Minneapolis: Bruce Publishing Company. 1928. (7½ × 10¾, pp. 260; illustrated. Cloth, 5.50 dollars; leather, 7.50 dollars.)

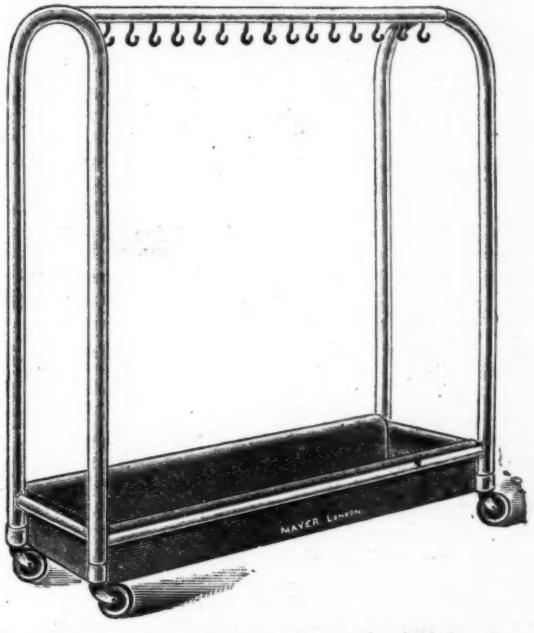
[12] *A Text-Book of Biologic Assays*. By Paul S. Pittenger, Ph.G., Ph.C., Ph.M., Phar.D. Second edition. Philadelphia: P. Blakiston's Son and Co. 1928. (Post 8vo, pp. xxiii + 373; 153 figures. 3 dollars.)

[13] *Clinical Surgery*. By J. W. Dowden, M.B., F.R.C.S.E. Edinburgh and London: Oliver and Boyd. 1928. (Cr. 8vo, pp. 68. 2s. net.)

PREPARATIONS AND APPLIANCES.

ABDOMINAL SWAB STAND.

DR. W. R. MACKENZIE (Belfast) has designed a mobile stand fitted with hooks upon which abdominal swabs may be hung after use, a removable tray catching the drips. The apparatus makes it possible for the surgeon or sister in charge to see and count the swabs, and thus minimizes the danger of one



or more being overlooked. The illustration shows the stand fitted with fourteen hooks, a number found useful for abdominal work, but stands with any number of hooks can be supplied. The apparatus runs very easily on ball-bearing castors, and forms a most useful piece of furniture for the operation theatre. The apparatus is made for the Samaritan Hospital, Belfast, by Messrs. Mayer and Phelps (49, New Cavendish Street, W.1).

ANAESTHETIC ETHER.

We are informed by Messrs. Howards and Sons Ltd. that their standard ether for anaesthesia, which has previously been made from industrial methylated spirit, is now produced entirely from duty-free rectified spirit, and at no stage in its manufacture are deleterious denaturants, such as wood spirit and pyridine, added. The standard ether is supplied at the same price as that formerly charged for ether made from industrial methylated spirit.

AN EMERGENCY DRESSING.

We have received from Mr. H. H. ARNOLD (81, St. George's Road, S.W.1) a small antiseptic dressing, capable of being carried in the pocket, for emergencies. It consists of iodine in a semi-solid form, a small dressing of sterile lint or gauze, and adhesive strapping, and is designed to facilitate the rapid sterilization of wounds. The price of the dressing is stated as 2s.

RADIUM IN THE TREATMENT OF MALIGNANT DISEASE.

LECTURE BY PROFESSOR GASK AT THE ROYAL COLLEGE OF SURGEONS.

A HUNTERIAN LECTURE on the use of radium and its emanations in the treatment of various forms of malignant disease was delivered by Professor G. E. GASK at the Royal College of Surgeons of England on January 30th. The lecture was a survey of the results of this treatment as obtained by the Surgical Unit at St. Bartholomew's Hospital, and was followed by a demonstration in the library of the College of patients who had been treated by radium. Professor Gask explained that he was acting only as the mouthpiece of the Surgical Unit, and was describing work which had been carried out by a team. He was fully conscious of the great amount of excellent work done abroad and in this country; if he did not refer further to it, it was not from want of appreciation, but because he thought his audience would prefer to learn the results of the particular investigation of which he could speak with personal knowledge.

Clinical Results.

In 1921, with some radium loaned to the Surgical Unit by the Medical Research Council, a start was made on the treatment of sarcoma; four patients were treated, of whom only one remained alive. The treatment employed at first was to implant a tube containing a large dose of radium in the middle of the tumour, and leave it there for a short time. In 1922 five patients with sarcoma were treated, of whom again only one remained alive. The treatment of sarcoma was disappointing, and, moreover, no large number of cases was available; therefore an attempt was made on carcinoma of the breast, only cases of recurrence, too advanced for further operative treatment, being taken. These were treated in the same manner, with the buried tube, but again the results were almost uniformly bad. Of three such patients treated in 1922, two in 1923, and two in 1924, not one remained alive.

In 1924 the first case of primary carcinoma was taken. While radium was found to have a very considerable action on the tumour, these cases of advanced growth, where there was metastasis, went on to a fatal issue. It was also clear that radium was not distributed far enough or evenly enough. The technique was changed, therefore, a smaller dose being given for a longer time. The first patient with primary carcinoma, treated in 1924, remained alive and well to-day. In 1925 six such patients were treated, of whom two remained alive, and in 1926 of another six, four remained alive. Of the thirteen treated in 1927 ten remained alive, and all the thirty-nine treated in 1928 had survived so far. The technique, which had been gradually evolved, was to insert a large number of needles—up to thirty-five—placing them underneath the breast, between the breast and the pectoral fascia, so as to make a kind of barrage; the axillae were dealt with in a similar manner. In one such patient in whom the carcinoma of the breast was well marked, the growth disappeared four months after radium treatment. After mentioning other striking cases of the same kind, the lecturer remarked that it was quite clear that a stage had been reached at which the immediate results of radium treatment could be pronounced satisfactory. The tumours shrivelled, fungating ulcers vanished, and the glands cleared up. This had not happened once or twice, but time and time again.

The Nature of the Curative Process.

Professor Gask said it was interesting to speculate what happened when radium was applied to a tumour. Physicists had suggested that the result might be due to an enormous agitation of electrons which caused heating of the cells and killed them by coagulation of the protein, but now there appeared to be some scepticism as to the very existence of the electron. While it could not be stated what was going on in the cell, some interesting experiments had been conducted by Dr. Canti and others. The lecturer exhibited a box of mustard and cress in the middle of which radon seeds had been inserted. In this spot the plant did not grow, and surrounding this area was a fringe of stunted growth. He also showed on the screen a section from a well-marked carcinoma of the breast. This patient, after five months, still had a lump in the breast, and it was uncertain whether the tumour was still alive. A local excision was therefore made, and the carcinoma disappeared, only necrotic tissue being left.

Ultimate Results of Radium Treatment.

As regards the final results of treatment, Professor Gask said that time must elapse before it would be possible to make any definite pronouncement. But as a basis of comparison he had taken a chart from the "follow-up" department at St. Bartholomew's showing the survival rate among women who had had various kinds of operations on the breast for carcinoma. The results were, he thought, appalling. At the end of six months only 85 per cent. were alive; at the end of two years about 60 per cent., after three years 50 per cent., and at the end of six years, which was the full period covered, 20 per cent. Thinking that this might possibly be exceptional, he inquired from Mr. Miles as to the statistics for the Cancer Hospital, and from these it appeared that ten years after operation the survival rate was only 20 per cent.

Technique of Radium Therapy.

Professor Gask then proceeded to speak about the introduction of radon seeds, which had the advantage that they could be used in very small confined spaces. The seeds were placed at the periphery of the tumour in such a manner that the whole tumour was irradiated. The first case in which this method was applied was a fungating epithelioma of the tongue; it cleared up in a remarkable way, the like of which he had never seen, with the exception of the disappearance of some gummas under the influence of iodide treatment. He showed lantern views of several cases of epithelioma of the tongue, with a good result in almost every instance. The problem remained how to deal with the glands, and Professor Gask illustrated the way in which needles, each containing 1, 2, or 3 mg. of radium element, were placed over the area.

With regard to tumours of the brain, it was thought that it might be possible to expose the brain tumour and leave radium in position. A case of commencing acromegaly in a woman presented itself; the pituitary tumour was exposed, and one radon seed inserted. The patient lost her symptoms, including headache; her fields of vision became normal, and she was very grateful. It was arguable, of course, that the manifest benefit was due to decompression, and not to radium treatment; on this he ventured no opinion. He related other dramatic cases in which radon seeds had been inserted in brain tumours, resulting in enormous improvement. One woman with a glioma had had ten radon seeds inserted with remarkable benefit, though here again the good result might be due to decompression. With regard to other internal tumours, attempts had been made to treat these in the same manner, so far without much progress.

In conclusion, Professor Gask said that it might fairly be claimed that Madame Curie and the physicists had placed in the hands of the medical profession a new and very potent weapon, of the extent and power of which they were not yet fully aware; that it was useful he was convinced. He confidently hoped that many of these cases, the like of which had previously been treated by operation, could now be cured by this method. Yet a note of warning must be sounded for those who were about to take up the use of radium, which, like all potent agencies in medicine, might be active for evil as well as for good. Surely Shakespeare might be held to have foreseen this when he bade us beware lest we heal the inveterate cancer of one wound by making many.

After the lecture a demonstration was given by members of the Surgical Unit of a remarkable series of forty-nine patients who were gathered in the library of the College. These patients had been suffering from various forms of malignant disease—of breast, tongue, floor of mouth, lip, pharynx, and brain—and all had been treated either with radium or radium emanations. In all of them the original tumour from which they had suffered had disappeared, and they remained apparently well. Patients were shown in all stages of duration of treatment, from four years to three weeks.

British Medical Journal.

SATURDAY, FEBRUARY 9TH, 1929.

THE SURGERY OF PROSTATIC ENLARGEMENT.

In recent numbers of the *British Medical Journal* have appeared various communications on the subject of prostatic enlargement, notably the address by Mr. Cyril Nitch published on January 26th (p. 139), and that by Professor Grey Turner in our present issue at page 233. A careful study of these papers provides a standpoint from which the present position of the surgery of prostatic enlargement may be surveyed. All writers agree that much progress has been made in the treatment of this condition during the last decade. The operative mortality, although still high, is on the decline. Great improvements have been achieved in operative technique, and still more in pre-operative treatment and post-operative care. The introduction of the two-stage operation of prostatectomy in itself has been instrumental in saving many lives. So also has been the spread of the knowledge of tests of renal efficiency. But when we turn to the pathology of enlargement we must confess that our knowledge is little more than that of the old Venetian physician of the sixteenth century, Nicola Massa, in whose writings the first reference to prostatic enlargement is found. The causes and nature of the disease are still unknown. In the last ten years no new facts have been gleaned which will enable us to decide between the rival theories of inflammation, new growth, and degeneration. Each explanation of enlargement has its partisans, but, as Mr. Nitch has stated in his paper, the theories most worthy of consideration would appear to be the neoplastic and the degenerative. At the moment the former is the more fashionable, although it fails to explain why adenomata should appear with such frequency in the prostate at a particular time of life. The theory that the enlargement is due to degenerative changes in the gland furnishes such an explanation, and an additional argument in its favour is supplied by the close resemblance between the histology of prostatic enlargement and that of the female breast at the menopause, a resemblance first noted by Mr. Henry Wade. Indeed, the microscopic appearance of the enlarged prostate is so similar to that of a chronic globular mastitis that it can only be distinguished from the latter by its characteristic corpora amylacea. Moreover, Mr. Kenneth Walker, in his Hunterian Lecture seven years ago, drew attention to the fact that prostatic enlargement is almost invariably associated with signs of degeneration and involution in the whole of the genital tract. These, he suggests, are indicative of a male climacteric, with its accompanying symptoms due to an unstable endocrine balance.

Not only is the cause of prostatic enlargement obscure, but doubt exists as to the structures involved. In the opinion of many Continental writers, notably those of the French school of urology, the condition is due to overgrowth of the various submucous glands situated in the prostatic urethra and around the neck of the bladder. According to this theory the prostate itself takes no share in this new formation beyond becoming compressed and atrophied around it. This diversity of opinion concerning not only the pathology, but the anatomy, of prostatic enlargement is probably due to the fact that we are dealing here with more than one pathological entity. Under the heading of prostatic enlargement have been placed cases of enlargement of the prostate itself, hypertrophy of various groups of submucous glands, inflammatory conditions accompanied by fibrosis, degenerative changes, and cases of true adenoma formation. It is only lately that any attempt has been made to differentiate between these various conditions, and much careful work, both in the laboratory and in the operating theatre, will be required before this can be done with any degree of accuracy.

When we turn to the question of treatment we find, happily, a greater unanimity of opinion. Where differences occur they concern technique rather than first principles. The indications for operation have been defined with some exactitude. These indications rest on the presence of signs of obstruction rather than on the presence of enlargement itself. It is realized that a considerable degree of enlargement may exist without any interference with micturition, and the majority of clinicians are prepared to adopt the expectant policy in such cases. Professor Grey Turner, in the interesting paper published this week, gives concrete examples of patients who have lived comfortably for many years with enlarged prostates. At the same time it must be admitted that certain authorities consider that the risk of such prostates becoming the seat of malignant disease justifies their removal. The fact that this risk can be assessed at a figure in the neighbourhood of 14 per cent., and that the mortality rate of prostatectomy throughout the country cannot be very much below this number, constitutes a serious argument against such a tenet. But, as has already been said, the chief divergence of opinion at the present day is that which concerns operative technique, one school of surgeons inclining towards the old blind method of enucleation, and the other towards the open operation advocated by Sir John Thomson-Walker. On theoretical grounds the latter would appear to be the better procedure, since it brings prostatectomy into line with the majority of modern operations performed under ocular control.

Next to renal failure, the sequelae most to be feared after prostatectomy are haemorrhage, sepsis, embolism, and obstruction. By bringing the field of operation under direct vision much can be done to avoid these unfortunate accidents. Bleeding points can be ligatured, torn fragments removed, and the prostatic bed treated according to general surgical principles. At the same time it must be confessed that the open operation, although it may reduce the risk of haemorrhage, of severe infections, and of post-operative obstruction, provides no certain guarantee that such complications may not occur. Moreover, the additional time required presents a serious disadvantage in certain cases. For this reason it would seem that the solution of the problems lies not in a blind adherence to one or the other method, but in a nicely balanced judgement that shall enable the operator to adopt one method for one type of case and another for another. It is the judgement he shows in the pre-operative and post-operative care, and the suiting of his technique to the requirements of each particular case, that determines the success of the prostatectomist. Manipulative skill can have little effect on his mortality rate if this judgement be lacking. Herein lies the

explanation of the wide divergences that are found in the death rate of prostatectomy performed in different hospitals and by different surgeons. Any operator of average skill can enucleate a prostate, but only those who have acquired judgement and experience in this type of surgery can do so with any degree of safety. It is for this reason that papers contributed by those best fitted to write on this subject are of such especial value.

DEMENTIA PRAECOX.

"CONTINUITY in change and change in continuity." Burke's political aphorism may be fittingly applied to recent developments in psychiatric science, especially in regard to the changing attitudes towards that large group of the psychoses formerly termed dementia praecox and now more generally styled schizophrenia.

When, some thirty years ago, Kraepelin introduced the appellation "dementia praecox" into the literature of psychiatry, a sudden clarification was brought about in our ideas of mental disease. In vain had Clouston adumbrated his adolescent insanity, which in many respects foreshadowed the Kraepelinian hypothesis. In vain also had Morel described as "démence précoce" cases illustrative of a profound degeneracy of constitution. Neither of these concepts had caught on. Clouston, indeed, had drawn a picture of certain patients, "unusually stupid-looking, lethargic, very dirty in habits, unobservant, uninteresting, silly, with a blank inexpressive face, a listless dull eye, and a flabby muscular system," as simulating secondary dementia, and, indeed, when they lived long enough, as constituting it; but his "adolescent insanity" failed where two Latin words later succeeded in holding the medical imagination. With Morel the case was different. For long the French school had been intrigued with the idea of a constitutional degeneracy in the sense that future generations became unable to hold their own in the struggle for existence and finally perished; and it was not with the object of demonstrating the dementia into which such cases finally succumbed that Morel drew his clinical picture, but rather with a view to illustrating still further examples of the degeneracy concept. Kahlbaum's description of katatonia was a distinct advance; and this group was incorporated by Kraepelin in his more comprehensive term. Kahlbaum and Hecker's earlier attempt to designate as a separate clinical entity an adolescent psychosis of deterioration, which they termed "hebephrenia," was also not to survive save in the wider Kraepelinian synthesis.

Illuminating as the Kraepelinian nomenclature has been proved to be, it is more than doubtful if the term "dementia praecox" will survive. A recent symposium on schizophrenia,[1] with dementia praecox as its subtitle, contributed by numerous authors to the Association for Research in Nervous and Mental Disease in New York, shows clearly the recent reaction to Kraepelin's terminology and the reasons for this. Dr. C. Macfie Campbell, professor of psychiatry in the Harvard Medical School, referring to the influence of Kraepelin in making the outcome of the psychosis a basis for its classification, considers that the use of this term has done serious injustice to many patients, and "both in physician and nurse it has tended to paralyse therapeutic effort." He expresses his satisfaction that "the conception of dementia praecox is loosening its grasp on the psychiatric world, allowing physicians to come to the complex clinical material with open minds and free from a rigid schema with the subtle suggestion of an impersonal disease process, running its insidious course regardless of the life situation and of the personal problems of the individual." It may here be questioned whether a name can exercise so great a tyranny, whether the mere categorizing of a syndrome, admittedly in fatalistic terms, can have so potent an effect for evil. Therapeutic effort is not withheld in cases of general paralysis of the insane; and it is hardly possible to believe that if the disease had never been called by any other name than dementia paralytica it would necessarily have received neglect.

But it is not solely the fatalistic implications of the term "dementia praecox" that have led to its being supplanted by Bleuler's "schizophrenia"; we would rather say that this latter designation affords a wider survey of the personal problems of the patient, and in particular demonstrates his relationship to, or participation in, the larger category of the schizoid type. By applying Freud's psycho-analytic teaching to the study of dementia praecox Bleuler was enabled, in the first place, to show that one of the chief characteristics of this disease consisted in a splitting of the psychic functions, and, further, to demonstrate in everyone schizoid tendencies. The schizoid type is described as withdrawn, secluded, and not in normal effective *rapport* with the environment. In one of the contributions above referred to Dr. A. A. Brill recounts the case of a schizoid person who suddenly heard that his child had been injured and had died. He apparently showed no "affect" whatever, but about a month later fell into a state of deep depression. Asked by Dr. Brill why he was so calm on hearing of the accident, he answered that he did not like to hurt his wife. This affords an excellent example of the displacement of feeling with the outward indifference so characteristic of these cases. The term "apathy" has long been used to describe the emotional state of the schizophrenic. Many observers have been inclined to correlate the stupidity of countenance with an absence of mental activity. Such is, however, far from being the case. The countenance is a mirror wherein the expression of the emotional state is most easily read, but the countenance of a schizophrenic is often an utter blankness. Dr. H. S. Sullivan, in his contribution to the symposium, reaches the conclusion that "apathy and emotional disharmony of the schizophrenic patient are more a matter of impression than a correct evaluation of the inner experience of the patient." He refuses to accept the view that there is any genuine disharmony in the schizophrenic life, but would rather argue that there is disagreement between what the schizophrenic patient actually *thinks* and what he feels called upon to say.

Numerous highly interesting problems call for solution in the study of schizophrenic reactions; and their number and nature are largely the outcome of a new orientation called forth by the work of Bleuler and that of Kretschmer, whose studies of the relationship of personality and psychosis to body type have provided so fertile a field for research. Faced with the manifold perplexities offered by psychiatrical problems, the scientific observer can yet discern in the fluctuations of experimental examination, of clinical description and terminological designation, "continuity in change, change in continuity."

[1] *Schizophrenia* [*Dementia Praecox*]: An Investigation of the Most Recent Advances, as Reported by the Association for Research in Nervous and Mental Disease. A Series of Research Publications, Volume V. New York: P. B. Hoeber, Inc. (Med. 8vo, xiv + 491; 61 figures. 7.50 dollars.)

DIAGNOSIS OF EARLY PREGNANCY.

ANOTHER reputed test for pregnancy has made its appearance, based on the hypothetical existence of a specific hormone modification. We referred last summer (June 2nd, 1928, p. 952) to A. C. Siddall's report of the discovery in the blood of a pregnant woman of a hormone which caused enlargement of the uterus and breasts. Now, in the *Zentralblatt für Gynäkologie* for January 5th (p. 15), S. Aschheim describes the technique and results of the test which he has devised with B. Zondek. He states that in pregnancy there are to be found in the urine very large amounts of the hormone of the anterior lobe of the pituitary body. To five infantile mice weighing from 6 to 8 grams are given subcutaneous injections of the morning urine of the patient to be tested, the amounts ranging from 1.2 to 2.4 c.cm. An injection of the urine is also made into a castrated mouse in order to test by the Allen-Doisy method the presence of ovarian hormone; this however, appears in the urine in pregnancy later than the pituitary hormone, and is found also in the urine of non-pregnant subjects. After one hundred hours the animals are killed and the ovaries are examined with the naked eye or with a pocket lens, or, in some cases, by serial sections. Aschheim describes threefold changes in the ovaries resulting from the action of this pituitary hormone: (1) the production of large follicles, which may ripen and burst; (2) bleeding into the proliferating follicle; (3) luteinization of the theca and granulosa cells of the follicle, with formation of corpora lutea atretica. The last two of these findings signify a positive result of the test; follicular enlargement, although denoting presence of the hormone, is apparently induced by such quantities as are present in the urine of a small percentage of non-pregnant patients. Before the animals are killed the presence or absence of vaginal swelling, hyperaemia, and discharge such as accompany oestrus is noted; these signs are attributed to ovarian hormone, in the production of which the hormone of the anterior lobe of the hypophysis (in the view of Zondek and Aschheim) acts as a stimulant. The reliability of this test in the detection of early pregnancy appears, in the hands of Aschheim, to have been considerably greater than that of the other biological tests for pregnancy which have been described from time to time. In 318 urines from non-pregnant female patients the test was negative in 315; in 15 from male patients, negative in 14. Among 296 tests in pregnant women there were only 7 negative results; 56 cases of pregnancy of five to six weeks' duration gave 54 positive results, and 68 pregnancies of seven to eight weeks' duration 66 positive results. The earliest diagnosis made was in the case of a patient with thirty-three days' amenorrhoea. About one week after labour the reaction is no longer given by the urine, and after the death of the foetus in the uterus the reaction is said to disappear in about eight days. Twenty-two cases of tubal pregnancy were tested; 16 gave a positive result, and the remander—in which foetal death had occurred some time previously—a negative result. Two cases of hydatidiform mole gave positive results, and in one a relatively small amount of urine (0.05 c.cm.) sufficed. Aschheim mentions a case of chorion epithelioma following hydatidiform mole in which the Zondek-Aschheim test was positive twenty-one months after hysterectomy, when nephrectomy was performed for metastasis; the hormone persisted in increasing concentration in the urine until death. It may be inferred that not the presence of the living foetus, but that of living chorionic epithelium, is essential for a positive test; it is recommended that after the occurrence of hydatidiform mole the Zondek-Aschheim test should be performed at intervals for some months at least, in order to detect the possible presence of chorion epithelioma. In the same issue of the *Zentralblatt* (p. 22) L. Kraul and J. Rippel report their experience of the Zondek-Aschheim test in thirteen very early pregnancies, including one in which there had been eight days' amenorrhoea only, and eight of which were subsequently shown to be pregnancies of four weeks' duration; all gave positive results. In two cases a positive test led to the correct diagnosis of early pregnancy in myomatous patients in whom amenorrhoea might, it was thought, indicate either pregnancy or approach of the menopause. In ectopic pregnancy the result of the test depended on foetal survival. A positive reaction was given in a case of hydatidiform mole in which no foetus was found. Odescalchi has obtained good results in thirty cases of pregnancy in the later stages (see *Epitome*, February 2nd, para. 119). H. W. Louria and M. Rosenzweig record briefly in the *Journal of the American Medical Association* (December 22nd, 1928, p. 1988) the employment of this procedure in 132 cases. Their percentage of error was about 5, and they are confident that this can be reduced. The practical importance of such a test, if reliable, needs no emphasizing, but experiment on a large scale is necessary to establish its clinical value. We therefore call the attention of our readers to Professor R. W. Johnstone's letter on page 264, in which he explains how general practitioners can co-operate with him and his colleagues in the Animal Breeding Research Department of the University of Edinburgh by sending samples of urine for testing in this way. In view of the diagnostic value of information as to the existence of pregnancy in certain obscure gynaecological cases, the fees proposed for this examination seem very moderate. Professor Johnstone may reasonably expect to receive adequate supplies of material to enable him to reach a definite conclusion as to the clinical utility of the Zondek-Aschheim test.

INFLUENZA.

IT is already evident that the current recrudescence of influenza is more serious than that of last year, but whether the total mortality will attain that of the year 1922, or (as is perhaps more likely) not substantially exceed that of 1927, is a question which cannot be answered with any real plausibility. In 1922 the quotas of weekly deaths increased at first slowly, so that the *rate* of increase was greatest when the epidemic had been in progress several weeks. In 1927 the rate of increase was greatest early in the course. This year the deaths reported from the great towns of England and Wales have, so far, been increasing at an advancing rate, so that it will not surprise us if this week's figure is considerably larger than that of last week. An interesting feature of the statistics is that the ratio of deaths in one week to notifications of primary pneumonia of the previous week is very much smaller than in 1922, and, on the whole, smaller than in 1927. For instance, last week the deaths in the great towns were 321, the notifications of pneumonia of the previous week 1,864; in the week of 1922 with the nearest number of deaths—namely, 418—the figure for pneumonia was 1,157. Of course, the deaths and notifications do not relate to the same populations, the latter covering a wider area; but, if we postulate a uniform standard of notification, the suggestion is that this prevalence is of a milder type than that of 1922. That, in general, the prevalence is mild seems to be confirmed by clinical reports from all parts of England and Wales. So far, at least, Liverpool and Manchester, although suffering more than London, have been less hard hit than Glasgow. The age distribution of the deaths is of the usual type—that is, showing a predilection for those past middle age. The recrudescence of 1922 was

widespread in Western Europe; thus, in London the deaths increased from 1,024 in 1921 to 2,600 in 1922; in Amsterdam from 25 to 276; in Paris from 145 to 517; in Berlin from 669 to 1,891; and in Copenhagen from 21 to 198. In American cities, which have suffered severely this winter, the upward movement was then less notable; thus, in Chicago there were more deaths assigned to influenza in 1922 than in 1921—namely, 317 against 114; in 1923 there were 428, while in 1920 there were 2,037.

THE COLONIAL VETERINARY SERVICE.

EIGHTEEN months ago Mr. Amery convened a committee, under the chairmanship of Lord Lovat, to consider the reconstruction of the veterinary services in the dependencies which were not self-governing. The report of this committee, which was presented to Parliament at the end of January, draws attention to the important work which can be done in the tropics by an efficient veterinary organization. Not only are there many pressing questions concerning the health and disease of stock and draught animals to be considered, but many equally vital problems of human disease can only be solved by the closest association between medical men and veterinarians. Moreover, increased prosperity in agriculture, the staple industry of our colonies, means increased revenue, which in turn will provide the ways and means of improving human health and hygiene. The committee considers that the veterinarian should concern himself with animals in health even more than in disease, and consequently recommends that the name "Veterinary Department" should be abolished in favour of that of "Department of Animal Health." In order to fulfil the important functions of such an organization it is recognized that more and better men must be attracted into the profession, and to this end it urges the creation of a unified Colonial Veterinary Service, with salaries commencing at £600 per year and reaching a possible maximum of £3,000 in special cases. This unified service would benefit both large and small colonies alike. Young officers would be attached to a large colony to learn the elements of their work, and from this young personnel the single animal health officer required by the smaller colonies would be drawn; in these he would learn to assume responsibilities and to undertake tasks of organization and administration which would be invaluable both to himself and the Colonial Governments when later he was posted to a larger unit. To assist in the recruiting of suitable candidates to the profession a temporary scheme of scholarships is proposed whereby graduates in pure science may obtain veterinary qualifications and veterinarians may take science qualifications. To supply the field workers and administrators with the material wherewith to carry out their duties and to co-ordinate their efforts, several important proposals are put forward. These include the appointment of an adviser in animal health at the Colonial Office with strong advisory committees to assist him; a school of tropical veterinary medicine would be established at home, and a central research institute abroad. The report is the work of statesmen, lay administrators, medical men, and veterinary scientists, and its conclusions are unanimous. Its proposals are far-reaching in their scope, and their effect, if they are put into practice, will be to place the solving of the problems of animal health in the tropics on a thoroughly satisfactory basis. Our readers do not require reminding how intimately these are bound up with problems of human tropical medicine and hygiene. We hope that every effort will be made to develop these proposals, and to establish a service which has been long in urgent demand; such a service could not fail to have the most beneficial effects on the general health and prosperity of the empire.

POPULAR DIETETICS.

IN recent months the Royal Indian Agricultural Commission, in its illuminating report, laid great stress on the importance of nutrition in relation to the progress and happiness of the people of India. Although it is probably correct that the initial problem for many millions in that country is to obtain enough to eat, yet "the simple truths of nutrition and how to make the best use of such foodstuffs as are obtainable" must be taught to those who are sufficiently educated to understand. Nothing, it seems, more impressed the members of the Commission during their tour through India than the evidence of Colonel Robert McCarrison, I.M.S., and the visit they made to the Pasteur Institute, Coonoor, where his elaborate experimental work is carried out. In response to a widespread demand for further information regarding food, received from "missionaries, planters, school teachers, child welfare workers, and others throughout India," Colonel McCarrison has produced a delightful little book on *Food*,[1] dedicated to the "Children of India." In the course of twenty-two lessons the author tells young people what to eat, why they eat it, and explains how the greatest single factor in the promotion of good health is good food; he presents in the simplest possible language the results of twenty years' work. The descriptive analogies of the reactions the organs of the body make to various foodstuffs constitute word pictures which cannot fail to attract the attention of every intelligent child; and education authorities, even in England, will find it difficult to discover a more suitable book for adoption as a school reader. The book is certain, however, to command an even wider interest, for it presents in the most explicit terms all the adult lay reader requires to know about the various components of a diet. Probably the useful tabular statements at the end of the book, giving among other things the vitamin contents of common food articles, were included because the author himself envisaged a larger circle of readers than he originally intended to cater for. Royalties on the sale of this little book are devoted to certain Indian charities.

FLORENCE NIGHTINGALE ON THE STAGE.

As its title implies, *The Lady with a Lamp* is founded on the life of Florence Nightingale, but the author, Captain Reginald Berkeley, has avowedly used "a certain dramatic licence" in depicting her personality and some of the leading features of her career. The programme explains that it is "an imaginative treatment of a psychological theme," and as such this play is drawing large and appreciative audiences to the Garrick Theatre. Jowett once told Miss Nightingale that it had been her fate to become a legend in her own lifetime. Sir Edward Cook, in his admirable *Life*, did a good deal to correct the popular romantic notion. He showed that "the real Florence Nightingale was very different from the legendary, but also greater." Readers of large two-volume biographies form, however, a small section of the public, and it remained for Mr. Lytton Strachey, in *Eminent Victorians*, to correct the notion still more drastically, and perhaps to build up another legend. Captain Berkeley has, we think, tried to steer a middle course in his interpretation of Miss Nightingale's character and ideals. He recognizes that it was as administrator and reformer more than as angel that "Santa Filomena" showed her special gifts, and he understands the significance of the early days in relation to her lifework as a whole. In order to make the point that, with all her clear-headed ruthlessness, she was "an intensely human woman with the

[1] *Food*. By Robert McCarrison, C.I.E., M.D., LL.D., F.R.C.P., Lieutenant-Colonel I.M.S. Calcutta and London: Macmillan Company, Ltd. 1928. (Cr. 8vo, pp. 115; illustrated. 1s.)

passions and desires common to all vivid personalities," he introduces a love interest into his play, but does this with so much discretion that our sense of probability is not offended. He is fortunate in the actress who takes the leading part. Miss Edith Evans brings great intelligence and sympathy into her interpretation, and the way in which she matures and ages from act to act is a triumph of restrained characterization. Of the other players many deserve praise, but special mention should be made of Miss Muriel Aked as Mrs. Nightingale, Miss Gwen Ffrangcon-Davies as Elizabeth Herbert (afterwards Lady Herbert of Lea), and Mr. Henry Oscar as Dr. John Sutherland. Mr. Eille Norwood as Lord Palmerston is good, but rather unlike our idea of "Pam." The last scene—the bestowal upon Miss Nightingale, aged 87, of the Order of Merit—is an elaboration of Mr. Strachey's closing theme based on the words, "Too kind, too kind!" Altogether this is a very agreeable and thought-provoking play, of peculiar interest to medical men and women. Once again intelligent playgoers are under a debt to the Arts Theatre Club Production.

DOCTORS' HANDWRITING.

THE reproach of illegibility has long attached to the handwriting of doctors; but the guilt, if guilt it be, appears to be shared by many others. In business houses, for example, it is stated that the financial loss from errors due to bad handwriting amounts to a very large sum each year. The fact that elementary school children write more clearly than those attending secondary schools suggests that one reason for bad handwriting is the extension of the school curriculum to include an increasing number of subjects, a factor which would operate with greater effect in secondary than in elementary schools. The cultivation of good handwriting depends a great deal on the amount of time that can be devoted to it. In a leisurely civilization fine penmanship is usually held in high esteem. When life ambles gently in a "green and pleasant land" the person of culture may find time to devote himself to producing a beautiful script. But with the speeding up of life has come a shifting of cultural values; with so much else to do and learn calligraphy has receded in importance. Only in elementary schools, it appears, where the syllabus is not yet overburdened, and the child is not forced to take notes at lightning speed, is there time to build up a legible copy-book script. Is it possible that snobbery may some day compel the cultivation of a vile fist as the distinctive mark of social superiority, much as the droppin' of the final "g" was once imposed in certain huntin' and shootin' circles? With the proved prevalence of bad handwriting, however, it is interesting to consider why popular fancy has chosen for special reprobation the illegible script of the doctor. It may be that the doctor really writes worse than other people. He has, after all, spent five years or more in a course of study which calls for perpetual note-taking—in what other faculty can one find a range of subjects so extensive and so difficult as his? And if as a student who must master all this knowledge he cannot give much thought to mere legibility of script, what of the time when he is burdened with the cares of a busy practice? Life is short, art is long, and he writes his letters and prescriptions as swiftly as possible. The explanation may not, however, be so simple. Perhaps, in fact, the doctor's script is no worse than that of any other professional man, but patients given to the pastime of scrutinizing prescriptions, convinced, moreover, that the doctor's scrawl is designed to keep secret the contents of these documents, are more likely to attribute their failure to decipher what is written to the doctor's illegibility than to their own ignorance of dog Latin and pharmaceutical terminology. It is, after all, a commonplace that in the clearest and most beautiful script unfamiliar words are more difficult to read than those which are familiar, and the average prescription teems with words which, even when spelt out in full, are beyond the range of the average layman's vocabulary.

GIFT FOR MEDICAL EDUCATION.

As a thank-offering for his escape with slight injuries in a motor-car accident last December, Lord Beaverbrook placed at the Prime Minister's disposal the sum of £22,800, expressing a wish that his gift should be distributed widely for the benefit of medical education in this country. It has now been announced from Downing Street that the Royal Society of Medicine will receive £2,800, and each of the following institutions £1,000: the Royal College of Physicians, the Royal College of Surgeons, the Medical Faculties of the Universities of Oxford, Cambridge, London, Durham, Manchester, Birmingham, Liverpool, Leeds, Sheffield, Bristol, St. Andrews, Glasgow, Aberdeen, Edinburgh, and Wales, Epsom College, the Cancer Hospital, and the Queen Charlotte's Hospital National Mother-Saving Campaign. The grant is to be applied in each case for special purposes beyond the capacity of the ordinary income of the institutions—for example, on studentships, research, and contributions to scientific equipment.

WE much regret to announce the death of Sir Alexander Ogston, K.C.V.O., LL.D., M.D., Emeritus Professor of Surgery in the University of Aberdeen, and Extra Surgeon to H.M. the King in Scotland, who presided over the Annual Meeting of the British Medical Association at Aberdeen in 1914. A memoir, with portrait, will appear in our next issue.

THREE lectures, entitled "Thirty years' experience of industrial maladies," will be delivered by Sir Thomas M. Legge, M.D., before the Royal Society of Arts, John Street, Adelphi, on February 18th and 25th, and March 4th, at 8 p.m.

THE KING'S ILLNESS.

WHILE convalescence has not yet begun, and cannot be expected to begin for several weeks after removal to the seaside, His Majesty's condition continues to improve little by little. There is a slow but definite increase in strength, and even a slight gain in weight. The King has been able to sit up for a short time on two occasions, with benefit to his health and spirits.

When the decision was first made to employ ray therapy in the treatment of His Majesty the choice of method was determined by two considerations. For clinical reasons the exposures could be made only for short periods of time, and applied only to small areas of the body surface, in order to reduce the degree of disturbance to a minimum. It was accordingly decided to use the mercury vapour lamp, with the object of stimulating parathyroid activity, adjusting calcium metabolism, rectifying the leucocyte count, and raising the bactericidal power of the blood. At the more serious stage of the illness this type of lamp, which emits a rich supply of ultra-violet rays, was therefore judged to be the method of choice. There is reason to think that the progress that occurred during the period of application of such measures was in part due to them. The improvement now attained renders possible treatment by the carbon arc, with its more penetrating luminous rays, whose energy, it may be hoped, will become converted to the use of the body, and thus favour the action of sea air, sunlight, and change of scene.

England and Wales.

The Mayor of Bath.

THE death of Alderman Cedric Chivers, mayor of Bath, which took place on January 30th, will recall to those who attended the Annual Meeting of the British Medical Association at the West of England spa in 1925 one of the most generous civic hosts whom it has been the fortune of the Association in its annual travels over to meet. Alderman Chivers actually took office as mayor that year, for the second time, in view of the visit of the Association, and not only in the exercise of a princely hospitality on the occasion itself, but in much trouble and care over the arrangements long beforehand, he played a very large part in making the meeting memorable. His great reception will not readily fade from the memory of the 2,500 guests who attended. A large reception hall, with annexes, was built in the Abbey churchyard, the banks of the neighbouring Avon were illuminated, and a succession of entertainments quite out of the ordinary were provided. Alderman Chivers was no orator, his speeches were as a rule models of brevity, but they breathed his love for Bath, which was his native town, every stone of which he knew, and the glories and traditions of which he did not a little to maintain. Last year also, when the Conference on Rheumatic Diseases met in Bath, Alderman Chivers again provided generous hospitality, though he was too ill himself to make an appearance. It was the same with all the various conferences visiting Bath. His long mayoralty—six years—in which, being a widower, he persuaded Madame Sarah Grand, the author, to be associated with him as mayoress, will remain a distinctive episode in Bath's great annals. He was at the head of every movement for beautifying the city and removing any reproach in its housing. One other great achievement of his was the establishment of the orthopaedic department of the War Hospital at Combe Park. Needless to say, he was a man of great wealth. His fortune was made in the unusual sphere of bookbinding, an art which he had revolutionized by a new method of stitching and also by a new decorative process for choice books; but he had in addition many generous interests in art and literature.

Maternal Mortality Problems.

Mr. Neville Chamberlain, the Minister of Health, was the principal guest at a luncheon given at Salters' Hall, London, on January 29th, by Lady Howard de Walden, in connexion with the national mother-saving campaign promoted by Queen Charlotte's Maternity Hospital. In the course of his speech Mr. Chamberlain said that the country was spending about £2,000,000 of public money every year on maternity and child welfare services, and a further large sum was being spent out of voluntary resources for the same purpose. The figures of infant mortality showed a remarkable drop since this service was initiated, but maternal mortality for the last twenty years had remained about the same—namely, about four deaths per 1,000 births. In spite of all the advances in medical and surgical science, in spite of all the money spent on ante-natal and post-natal clinics, in spite of all the propaganda that had gone on, and the improvement in the training of midwives and the practical disappearance of "Mrs. Gamp," they had not been able to budge this obstinate figure. Mr. Chamberlain then said that the first thing to be done was to find why they could not get this figure down. It was known that one of the principal causes was puerperal infection, but they did not know how that arose, and they therefore could not prevent it. He then referred to the inquiry recently instituted by the Ministry of Health, saying that he had enlisted the services of the local authorities and the medical profession in an endeavour to secure a report on the circumstances of every maternal death, and had set up a strong committee of experts to examine the information secured. One of the difficulties was that these cases of puerperal infection were scattered so that no one investigator had in his hands sufficient material for a continuous and intensive study of the particulars. He was therefore delighted to learn that Queen Charlotte's Hospital proposed in its new scheme, to which reference was made in our last issue (p. 220), to provide an isolation block solely for such cases. That was a lead given by a voluntary hospital which, he thought, showed the direction in which they must work if they were to obtain substantial and valuable results from research into the cause of puerperal fever. Summing up, he said that they wanted more ante-natal and post-natal clinics, more beds in maternity hospitals and homes for difficult and complicated confinements, more specialists in obstetrics to attend those complicated cases, and more skilled nurses for them when they were confined in their own homes. Lastly, but by no means least, they wanted more education of the people as a whole so that they might realize the need for special care in maternity. In conclusion, Mr. Chamberlain referred to the recent establishment of a committee to investigate the training of midwives, and to the need for raising the standard among them. Mr. J. Gibson Jarvie, a member of the committee of management of Queen Charlotte's Hospital, said that it was intended to provide proper facilities for research.

Radiological Services at London Mental Hospitals.

The London County Council eighteen months ago authorized, as an experiment for one year, the employment as consultant of an expert radiologist in connexion with cases of illness among patients at the mental hospitals, at an inclusive fee of one guinea for each case reported upon by him, subject to an expenditure limit of £210. It is now stated that while the experiment has met the needs of the hospitals, the appointment of one consultant radiologist to act for all the institutions is no longer advisable, in view of arrangements which have been made between several of the mental hospitals and the general hospitals for the services of consultants on the staff of the latter to be available for the mental hospitals. It is therefore proposed, as a further experiment for twelve months, that the medical superintendents shall be authorized to utilize the services of radiographers on the staff of associated general hospitals for advice and assistance in the taking of difficult radiographs, and for assistance in reading radiographs, when necessary, at a fee (if required) not to exceed, as a general rule, one guinea for each case dealt with, and subject to a limit of expenditure for each mental hospital of twenty guineas—that is, £210 for all the hospitals together—for the twelve months.

Scotland.

Glasgow Relics of Lord Lister.

A FINAL meeting of the executive committee of the Glasgow Lister Memorial Fund was held in the City Chambers on January 27th, with the object of winding up the fund and discharging the committee. The Lord Provost, Sir David Mason, presided, and it was stated that the only matter which still required decision was the final destination of the various memorials of Lister and other relics illustrative of the evolution of surgery which the committee had acquired in the early stages of the fund with a view to their being preserved in the old Lister ward of the Royal Infirmary. Sir John Samuel, honorary secretary of the committee, submitted a report of the history of the fund, and said that the committee had been formed in February, 1912, when the movement to provide a memorial of Lister in Glasgow was inaugurated. It had been resolved at that time that the most appropriate monument to Lord Lister would be the formation of a Lister museum in the ward which had been used by him in the Royal Infirmary at the time when the first experiments with antiseptics were made. Negotiations were thereafter opened with the managers of the Royal Infirmary for the preservation of this ward, but it had been finally resolved that the ward should be demolished, and this was done, to the great regret of the memorial committee. The funds in the hands of the committee had thereafter been used for the erection of a statue to Lord Lister in the Kelvingrove Park. In view of the hope held out at the commencement of the committee's work that the Lister ward at the Royal Infirmary would be preserved, Mr. A. E. Maylard and the late Sir Hector Cameron had collected a large number of valuable articles belonging to Lord Lister or associated with his work. These had been deposited meanwhile in the Royal

Infirmary, and with the approval of the managers were placed in the central hall of the Pathological Institute under the care of Professor Teacher. In July, 1926, they had been lent to the Wellcome Historical Medical Museum in London to form part of an exhibition of relics in connexion with the Lister centenary celebrations in 1927. The question now arose as to their final destination. It was resolved that the relics should be presented to the University of Glasgow for permanent custody, but that if the University did not see its way to accepting the gift they should be offered to the Corporation for preservation in the Kelvingrove Museum. A vote of thanks was accorded to Mr. A. E. Maylard, who had acted as convener of the subcommittee that collected the relics, and as editor of the memorial volume on Lister.

University of Edinburgh.

The University Court of the University of Edinburgh, at a meeting on January 28th, with Principal Sir J. Alfred Ewing in the chair, approved an ordinance increasing the matriculation fee from £2 2s. to £2 12s. 6d. It is intended that the additional 10s. 6d. should be set aside for a special fund to be called the Physical Welfare Fund, and to be administered by the court. All payments from it are to be made with the object of promoting, directly or indirectly, the physical welfare of students of the University. The increase in the fee will take effect on October 1st next. At the same meeting Sir Alfred Ewing intimated his intention to retire from the principalship of the University on September 30th next. In his letter of resignation he stated that he had hoped to carry on his duties to the age of 75, the age limit fixed for principals of the Scottish universities, but that reasons of health had persuaded him to retire a year earlier. Before coming to Edinburgh Sir Alfred Ewing had a long experience, both as a teacher and as an administrator. After holding a professorship of engineering at the Imperial University of Tokyo, he was called to the professorship of engineering at University College, Dundee, and afterwards was appointed to the chair of mechanism and applied mechanics at Cambridge in 1890. In 1903 he became director of naval education under the Admiralty, where he remained until 1916, when he succeeded the late Sir William Turner in the principalship of the University of Edinburgh. During the war he acted as the head of an organization which worked on the interception and deciphering of enemy wireless messages. During his tenure of office as principal the University of Edinburgh has passed through a period of considerable development and expansion. Since 1916 thirteen new chairs have been founded, as well as a large number of readerships. The chief addition to the University has been that of the King's Buildings on the south side of the city, where chemical laboratories and, more recently, departments of natural history and animal genetics have been provided. During his period of office, too, negotiations were carried through which resulted in the admission of women to full privileges as students in the faculty of medicine. Two new degrees have been instituted in this period, that of Doctor of Philosophy and that of Bachelor of Commerce, and important affiliations have been concluded with the training college for teachers and the Edinburgh and East of Scotland College of Agriculture. The appointment of a successor is in the hands of the curators of the University, a body consisting of the Lord Provost of Edinburgh with three representatives of the Town Council and three members of the University Court.

Aberdeen Sick Children's Hospital.

The new buildings of the Royal Aberdeen Hospital for Sick Children were opened by Viscountess Cowdray on January 31st. This is the first of the institutions to be completed on the extensive Foresterhill site to the north-west of the city in connexion with the large joint hospitals scheme, in respect of which a sum approaching £400,000 has been collected for buildings and partial endowment. The cost of the hospital itself is over £100,000. In the immediate proximity the new Royal Infirmary buildings, of which the Prince of Wales laid the foundation stone on August 23rd last, are making rapid progress. The new hospital is laid out on 17½ acres of ground, and provides accommodation for 128 cots in nine wards. A large playroom, facing the south-west, fitted with vita-glass, is a new feature of the hospital, and the provision of large verandahs enables cots to be wheeled out into the open air in fine weather, so that convalescent children may enjoy as much fresh air and sunshine as possible. Ample lawn accommodation is also provided as a playground for children in a later stage of progress towards health. The *x*-ray room is believed to provide the most elaborate apparatus of its kind in the north of Scotland. Separated from the hospital is a substantially built nurses' home, towards the furnishing of which many donors have come forward with handsome gifts. Mr. Harvey Hall, chairman of the hospital directors, presided at the opening ceremony, and was accompanied on the platform by the Marquess and Marchioness of Aberdeen and Temair, and others. The chairman said that over eighteen years had elapsed since the directors issued their first appeal for funds to build a new hospital. With the erection of the new hospital the annual expenditure, which at present exceeded £8,000 per annum, would be largely increased; it would still be necessary to secure an endowment fund, and they trusted that the many subscribers to the building fund would help them to raise that endowment fund also. Lady Cowdray, in performing the opening ceremony, remarked that it was peculiarly fitting that in the reorganization of the whole hospital work of the city the children's part should come first, for theirs should be the longest span of life, and their care was the best insurance which could be had for the conditions and durance of life in coming generations.

Ireland.

Vaccination in the Free State.

DR. E. STEPHENSON, who is the chief medical officer of the Free State Department of Local Government and Public Health, recently stated that in general the vaccination laws were now being administered satisfactorily, and that the number of defaulters was being reduced. The procedure is that unless a child is vaccinated within three months from the date its birth is registered the parents or guardians become defaulters. The vaccination officer then serves notice on each defaulter, and, failing compliance with the law, legal proceedings are instituted. Very few instances have occurred in which the vaccination authorities failed to discharge their statutory duties and institute proceedings, and in those cases the central authority which supervises the administration of this law compelled them to take action. Some of the local authorities were showing great interest in vaccination, and frequent requests for information as to its effects were made to the department. Dr. Stephenson referred to the results obtained by vaccination in infancy in England, recalling the views expressed by the committee on this subject which made its report last year, and in conclusion said that there was ample evidence of a growing belief in the efficacy of vaccination in Ireland.

County Hospitals and their Equipment.

The Irish Medical Secretary of the British Medical Association recently informed the Dublin press—in connexion with a resolution passed at a recent meeting of the council of the Irish Medical Association referring to the deficient equipment of certain county hospitals—that many of the county hospitals were quite unfitted for the performance of important operations, and that the equipment was often not up to date. It was pointed out, however, that a number of the county hospitals were excellent in every respect, and that great credit was due to the health boards who had spent the money to make the hospitals efficient. It was only right, moreover, to say that the Department of Local Government was continually urging the improvement of county hospitals, and that the department had invariably sanctioned the expenditure of local funds for this purpose. The trouble was that the old workhouses were still used as hospitals, and in these the water supply and the sanitation was not always good. There were excellent hospitals, it was added, equipped in

a modern way, at Castlebar, Navan, Wexford, Croom, Limerick, Cork, and elsewhere, and the aim should be to raise the other hospitals to their standard of usefulness. The problem rested largely with the health boards, whose proposals for hospital improvement were always sympathetically and practically considered by the Local Government Department.

Medical Certificates and School Attendance.

At a meeting of the Strabane and Castlederg Regional Education Committee it was stated that the attendance of school children was on the down grade in the six counties. Criticism was expressed of charges being made for medical certificates, especially in the case of children of poor parents. It was, however, explained, on behalf of the Education Committee, that if parents satisfied the school attendance committee with a reasonable excuse there was no prosecution, but that many did not do so, and instead appeared before magistrates with doctors' certificates and secured the dismissal of the cases, which was regarded as unfair. It was decided to inform teachers that medical certificates need not be insisted upon if they were satisfied as to the children's illness.

Display of Medical Films.

A meeting of the Leinster Branch of the British Medical Association was held on January 24th in the hall of the Royal College of Physicians, Dublin, with Dr. M. R. J. Hayes in the chair. An invitation was extended to non-members and medical students to be present at the exhibition of medical films by the Kodak Company. The attendance was very large, and the display of films was followed with the keenest interest for almost three hours.

Correspondence.

DIAGNOSIS OF EARLY PREGNANCY.

SIR,—The occasional great difficulty and importance of making the diagnosis of early pregnancy are so well recognized that any diagnostic test that is said to be reliable calls for serious consideration and examination. The latest such procedure, the Zondek-Aschheim test, promises to prove itself reliable, for the results of those who have tried it extensively indicate only a 2 per cent. incidence of error;[1] it depends on the presence in the urine of the pregnant woman of a hormone, which the original observers believe to come from the anterior lobe of the pituitary body, and any theoretical doubts which may exist in the minds of some as to the identity of the hormone do not affect the validity of the test.

The only practical difficulty in the adoption of the test is the need of a suitable supply of test animals under the care of an expert. This difficulty has been overcome in Edinburgh by my colleague Professor Crew of the Genetics and Animal Breeding Research Department, and in Dr. B. P. Wiesner, Ph.D.Wien, a member of the staff, we have a distinguished expert with the available material.

May I therefore inform the medical profession through your columns that in order both to test thoroughly the reliability of the Zondek-Aschheim reaction, and at the same time to be of help, if possible, in difficult cases, Professor Crew and Dr. Wiesner are prepared and willing to employ the facilities of the department in regard to any specimen sent to it?

The test is said to be valid from fourteen days after the first missed menstrual period. All that is required is to send a few ounces of the patient's urine, with a covering letter containing the clinical data, etc., to the Animal Breeding Research Department, King's Buildings, University of Edinburgh. It is proposed to charge a modest fee of 5s. in each private case to cover the cost of animals and other material, and this fee will enable similar tests to be made for the reduced fee of 1s. 6d. in all hospital cases referred to the department. The result of the test will be notified by post to the sender about a week after the urine is received.

The help which the test has already afforded to me in several cases in the last three months leads me to believe that in throwing their facilities open to the profession in this country Professor Crew and Dr. Wiesner are offering us very great practical assistance, and I hope that many of my colleagues will take advantage of these arrangements.—I am, etc.,

R. W. JOHNSTONE.

Department of Midwifery and Gynaecology, Edinburgh University, Jan. 31st.

[1] *Lancet*, 1928, ii, 834.

TREATMENT OF FRACTURES.

SIR,—In the *Journal* of January 19th (p. 117) you comment on the present position of the treatment of Pott's fracture, and in the same issue appears a letter from Mr. Muirhead Little on fracture clinics, in which Mr. Little says: "The crux of the whole fracture problem is made up of the lack of interest in fractures which is shown by many general surgeons."

In your article you refer to the publication of Mr. Harry Platt, and later on mention that Dr. Frank Dickson, in his recent paper, recommends immediate reduction of the fracture and the application of plaster-of-Paris. It happens that at a recent examination at the College of Surgeons a late house-surgeon of Mr. Platt's was asked by a surgeon in a senior position in one of the London teaching schools how he would treat a Pott's fracture. He replied that he would reduce it and fix it in plaster-of-Paris, and was met by the examiner's comment, "Let me tell you that plaster-of-Paris is not the way to treat a Pott's fracture."

At the present time almost every orthopaedic surgeon in the country uses plaster for this fracture, finding that it is impossible to maintain reduction of the posterior displacement by any other method, and this treatment is not new, but has been in use for a number of years.

How are we to progress in the treatment of fractures when the surgeons who are teaching this treatment and examining upon it in the ordinary pass examinations fail to keep in touch with the present accepted ideas of treatment? Mr. Muirhead Little quotes Professor Hey Groves as suggesting that the solution of the problem of fracture treatment may come by utilization of the municipal hospitals, and adding to their staffs and equipment. This would, no doubt, be an advantage from the patient's point of view, as the segregation of fractures in these hospitals would tend to raise the whole standard of treatment, but it might well prove a disaster from the point of view of undergraduate education. The large teaching hospitals have already lost the whole of the treatment of tuberculous disease. If steps are taken which tend to remove from them the routine treatment of injuries, a section of surgery which is of very great importance to the general practitioner will disappear from the ordinary experience of the medical student.

It is to be hoped that the threat of such a thing happening will induce the staffs of the teaching hospitals to organize their treatment of fractures on more rational lines.—I am, etc.,

London, W.1, Feb. 4th. R. C. ELMSLIE.

ENLARGEMENT OF THE PROSTATE.

SIR,—Sir John Thomson-Walker, in his letter in your issue of February 2nd (p. 222), criticizing my article on "Some problems connected with benign enlargement of the prostate," takes me to task for not advocating his operation whole-heartedly, is then unable to decide what I do recommend, and finally infers (or so it appears to me) that I claim credit for the long incision in the abdominal wall he has "recommended so long and so often."

In the first place, the article was written with a view to calling attention to some of the problems connected with the etiology and treatment of the enlarged prostate, and not to specify details of technique and operative procedures, otherwise I would not have hesitated to give my

reasons for not seeing eye to eye with Sir John in the operation he advocates. He states that the digital examination of the prostatic cavity I advise is an unreliable guide to the necessity or otherwise for an open operation. To this I do not agree. Given a sufficiently delicate touch it is quite possible to feel long tags of mucous membrane, small adenomatous masses, partially detached layers of capsule, and an unduly prominent vesico-prostatic shelf. The control of haemorrhage by ligature and suture, which is one of the supposed advantages of the open operation, is by no means so satisfactory as it sounds.

Secondly, I was under the impression that the operation I advocated, but did not describe in detail for reasons already given, was perfectly intelligible, but as Sir John is unable to understand let me now make it quite clear.

The "prostate" is enucleated through a long incision in the abdominal wall and a small one in the bladder, the former being to permit of easy access to the gland and to dispense with the necessity for a finger in the rectum. The walls of the prostatic cavity are then carefully palpated; if they are smooth the bladder is drained with a large tube, but if they are uneven and contain irregular masses, etc., the bladder is opened widely and they are removed by "the method described and advocated for a number of years" by Sir John Thomson-Walker. The supposition that I apparently recommend a combination of two different operations is therefore correct. I trust this explanation will relieve Sir John's anxiety that I should not "have it both ways," and that I should not indulge in such feats of prestidigitation as to "have a finger in the rectum and avoid putting a finger in the rectum."

The closing sentence of Sir John's letter expressing his gratification that "Mr. Nitch should have adopted, or at least approved of, even part of the technique that I have recommended so long and so often" naturally gives me the greatest satisfaction, which, however, is tempered by regret that in mentioning the open operation in my paper the name of the originator was inadvertently omitted.—I am, etc.,

London, W.1, Feb. 3rd. CYRIL A. R. NITCH.

SIR,—I was interested to read Mr. Nitch's article on benign prostatic enlargement in a recent issue of the *British Medical Journal* and Sir John Thomson-Walker's letter with reference to it. While thoroughly endorsing Mr. Nitch's approval of the long incision, I am surprised at his advocacy of the gloved finger. The sense of touch is the sole guide in an ordinary prostatic enucleation, and should be helped in every possible way, not dulled by any intervening medium. Mr. Nitch admits that he relies on the sense of touch, and yet handicaps himself by wearing a glove. The careful methods of procedure which are essential to a successful enucleation are much easier with the bare finger, and the "prostatic relics," which are difficult to detect even without a glove, are infinitely more so with one. The introduction of sepsis need not be feared if reasonable precautions are taken as to the hand. As Sir John Thomson-Walker pointed out many years ago in this connexion, gentleness of manipulation is an important factor as regards asepsis; it is decidedly more practicable without a glove than with one. Needless to say, this is no attempt to minimize the advantage of gloves in other operations.—I am, etc.,

London, W.1, Feb. 4th. W. K. IRWIN, M.D., F.R.C.S.

SIR,—Since the forage treatment of the prostate introduced by Dr. Luys of Paris has hardly yet won a place in the current practice of urology it may be helpful for a medical man who has undergone it to record his personal observations. Information of this kind is more precise, and its interpretation more scientific, than that obtainable from a patient without medical knowledge.

I am 58 years old. My urinary trouble commenced some seven years ago; it grew progressively more pronounced, and became almost intolerable during the last two years. Micturition, at first slightly frequent, increased until it recurred every two hours; the interval was then reduced to every hour or even less. Thus, in the end, my sleep was incessantly broken by the need to urinate, and I was obliged to rise six times or more during the night. The stream diminished in volume and force; the commencement of micturition was delayed, the act became increasingly difficult, and the end was an uncertain dribble. Eventually it became extremely painful to urinate, and this pain, recurring so very frequently, caused a marked depression in my general state of health.

In August, 1928, I consulted a urologist in London, who diagnosed an enlarged prostate and advised prostatectomy. This clinical and cystoscopic examination was painful to the point of provoking an acute retention of urine, haemorrhage, and some hours of acute suffering. Being already very depressed and anxious about the consequences of an operation, I decided to go to Paris in order to ask Dr. Luys if it would be possible to obtain benefit from his method of "forage de la prostate." At the time when Dr. Luys examined me my residual urine was constant at 75 grams. The pain on micturition was becoming intolerable; the urine was cloudy, and contained *B. coli*, enterococci, and staphylococci. I was subject to attacks of urinary fever rising to 103° F., and my general state of health was much lowered. I had lost weight, and looked and felt ill.

On my entry into Dr. Luys's "Maison de Santé" I was first submitted to preparatory treatment, which consisted of the slow methodical dilatation of the urethra with curved steel sounds (Béniqué's), combined with frequent irrigations of the bladder. When my urethra had become sufficiently "broken in" Dr. Luys was easily able to carry out an endoscopic examination of the prostate with his direct vision cystoscope. He diagnosed a prostatic adenoma localized to the left lobe of the prostate and forming an extremely pronounced projection at the level of the neck of the bladder. This prominence crossed the middle line to such an extent that its convexity pressed on the almost normal right lobe. The prostatic adenoma was not more than 2 cm. long in the antero-posterior direction. Thus my prostate was small in volume, and, in these conditions, forage was clearly indicated. However, before undertaking this operation Dr. Luys deemed it indispensable to treat first my local and general state of infection. On the advice of Dr. Bécart a course of oral vaccination was begun by means of a stock vaccine, a suitable kind being the enteroxin Leclerc, which is a mixed bouillon vaccine containing 50 per cent. *B. coli*, 25 per cent. enterococci, and 25 per cent. staphylococci (method Gaehlinger-Bécart).

The next day my temperature fell to normal and remained there in spite of the different interventions practised. Examination of the faeces showed a very marked microbic flora, and a pure culture of the colon bacillus was isolated by Dr. Bécart, who prepared an auto-vaccine, which I took for forty days each morning on waking. From the beginning of this treatment I had no longer any fever. The forage was performed during a period of immunization which sheltered me from oscillations of temperature, except on one occasion on the third day after the first operation, when there occurred a rise to 102° F., quite transitory, and of no consequence. My general health had undergone a rapid transformation, and the serious features of my case had been cured without any untoward incident.

The first session of electro-coagulation took place on October 12th, 1928, and, although not of great intensity, I was struck by the volume of the sloughs which I eliminated after ten days. I experienced a very marked and rapid improvement in micturition; the frequency diminished, and I emptied the bladder much better, the residual urine now not exceeding 30 grams. The second electro-coagulation treatment was given on November 9th, and seven days later, while passing water naturally, I shed an enormous eschar, which made room for a stream of urine strong and full from beginning to end of the act. Micturition is now effected without delay and without pain, my bladder emptying itself perfectly since that time.

I have thus, by this intervention, obtained the result I desired—that is to say, recovered the normal function of my bladder without incurring the risks of prostatectomy. I therefore consider that whenever the case is indicated—that is, in all prostatic enlargements of small or medium volume—it is extremely advantageous for the patient to have himself treated by the method of forage in preference to prostatectomy.

Forage is a conservative operation, easily borne, and terminating in a cure. It is a delicate and difficult procedure, demanding a high degree of experience and expertness in the use of a very specialized electrical and urological armamentarium, but its lasting success is shown by the re-examination of numerous cases extending over many years.—I am, etc.,

London, W.C., Jan. 3rd. G. A.

ERYTHEMA NODOSUM.

SIR,—If I read the signs aright another spate of correspondence on erythema nodosum is imminent. Might I be allowed to outline a summary of the status of this disease? The supposed association with rheumatic fever dates back to Stephen Mackenzie, whose data and conclusions are to-day regarded as scanty and altogether erroneous. The association has been perpetuated partly by a faithful copying from book to book of Mackenzie's conclusions and partly by a confusion in clinical observation between the genuine joint phenomena in rheumatic fever and the arthritic pains and fascial soreness which are indeed common in erythema nodosum.

Priority for the notion that erythema nodosum may be the rash of an acute specific infectious disease belongs to Dr. Harrison, who was president of the Dermatological Society of London in 1900. But this conception was elaborated with considerable weighty personal clinical experience by Dr. Lendon of Adelaide, who invented the term "nodal fever," and published in 1905 a book with that title. There has been steady observation in support of this term ever since; and I, for one, always read with the greatest possible pleasure and interest the writings of Dr. Odery Symes.

But by far the most important of the clinical relationships of erythema nodosum is its association with tuberculosis. Scores of published cases make this association indisputable. Some people, with good reason, look upon erythema nodosum as a herald of tuberculosis. I believe that the opinion of those who have most experience is that about 20 per cent. of all cases of erythema nodosum are followed by tuberculosis within a few months: but some Continental and Transatlantic clinicians put this figure much higher.—I am, etc.,

The General Infirmary, Leeds, Jan. 28th. G. F. WALKER, Medical Tutor and Registrar.

X-RAY DIAGNOSIS.

SIR,—Dr. Vincent Norman refers, on February 2nd (p. 225), to the correspondence on this subject in the *British Medical Journal* during the closing months of last year. This discussion followed the joint meeting of the Sections of Surgery and Radiology at Cardiff, at which it fell to my lot to reply to certain criticisms made by Mr. Herbert Patterson. I took no part in the subsequent correspondence in your columns, as it seemed to me that no new points were raised.

Now Dr. Norman breaks fresh ground. He talks about "a general practitioner's point of view of one of the contestants." By this he means his own view, which he is perfectly entitled to state, and which is no doubt of great interest. But when he speaks of "the radiologist" he enters the region of concepts. It is possible to have a satisfactory concept of a horse, because all members of the species will, in given circumstances, behave in much the same way. It may even be possible to have some sort of concept of a general practitioner: his evolution has, at any rate, been going on for hundreds of years. But what of "the radiologist"? Are his specific characters fixed? I should say not; zoologically, he must be placed rather in a phylum than in a species or even a genus. In other words, radiologists differ. This is evident even from Dr. Norman's letter, in which the crimes of one are not those of another.

To deal first with what I think are genuine grievances: the general practitioner should certainly have the radiographs of his cases if he wants them. In most instances a careful report with, if necessary, key diagrams, should enable the practitioner to follow the radiological argument. The chief risk in sending films is that some practitioners discover in them all sorts of alarming abnormalities which have no real existence; when the films are handed on to patients the tale of these discoveries is endless. However, the advantages of sending films or prints outweigh the disadvantages, provided it is made quite clear that the radiological opinion is what really counts.

Then Dr. Norman complains that in another case the negative is discussed with the patient before sending it to him. As a general rule this should not be done. The only exception I know is in the case of suspected fracture. Here, when a patient is inclined to grumble at his doctor, the demonstration to him of an unfractured bone, or of a fractured bone in excellent position, may have a good effect in making him believe he has been well treated; or the demonstration of a terrible smash may warn him not to expect miracles from subsequent treatment.

Negatives other than fractures should never be discussed with patients; but is the patient to be told nothing as to the result of the examination? No general answer can be given to this question. The radiologist should not volunteer information. His formula should be: "I will send a report to Dr. So-and-so, and you will hear from him." But not every patient can be put off with this. Some say, frankly, "I am paying for this examination and I want to know." Some concession must be made in such circumstances. If nothing suspicious has been found, I see no objection to telling the patient so, at the same time emphasizing that a negative *x*-ray finding is not conclusive. If the *x*-ray evidence is positive and serious, if, for example, it reveals a probable neoplasm, it is my practice to say, if pressed, "Your doctor has been very wise to send you for this examination, which has given information which will be of great value in the future treatment of your case." One can always refuse to be more explicit on the ground that time is needed to study the negatives.

With Dr. Norman's other grievances I have personally no sympathy. He complains that when he sends a patient to be examined for possible neoplasm of the stomach it is irritating to be told that, in the radiologist's opinion, the trouble is merely indigestion. I am sure that in some cases these opinions are, so to speak, purely conversational. To use the words of Pooh-Bah in the *Mikado*, they "give an air of verisimilitude to an otherwise bald and unconvincing narrative." I have known myself volunteer the opinion that a patient was suffering from a sprained ankle simply because it seemed so brusque to say merely that there was no *x*-ray evidence of injury to bone!

But when these opinions are not merely platitudinous should they be frowned upon? Here we touch a vital point on which agreement is probably impossible. There is the practitioner who wants, as he says, a plain "Yes" or "No" to his question, and, like a cross-examining counsel, is much annoyed if he does not get it. He asks, Has this patient a gastric or duodenal ulcer? He does not want to be told "No, but he has old lung tubercle, probably active, which may account for the indigestion of which he complains." Does he even wish to be told "No, but he has a chronic appendix, or a pelvic caecum with a seventy-two hours' residue"? It is doubtful. Gentlemen who want a plain "Yes" or "No," if they exist in sufficient numbers, will get the kind of photographer-diagnostician they desire. But a full medical training would be wasted in such a case. Any competent *x*-ray sister at a large hospital could answer these questions.

Adapting the phrase of an eminent surgeon, I like to call myself a "physician practising radiology." It should be remembered that nearly all radiologists of fifteen or more years' standing are men who have had wide experience of general medicine. They were physicians before they were radiologists, and have maintained their interest in medicine as a whole. They cannot be expected to stultify themselves by a deliberate narrowing of outlook which they believe would be to the disadvantage both of patients and practitioners. Such a degrading limitation is not expected in other countries. For instance, in the United States a leading radiologist is—or was—the dean of the faculty of medicine of his university. In a recent address Mr. Sampson Handley suggested to radiologists that they had until now, of necessity, been too much preoccupied with technique, but that it was now time that they concerned themselves more with pathology and other more strictly medical problems.

One piece of practical advice I should like to give to such of my younger colleagues as aspire to work on these lines: remember that radiological reports are handed on from expert to expert, and often seen by the patient. Make them as restrained as possible, and, if you must indulge in hypothesis, let it be clearly indicated as such.

Then, if you have other more general views which you think it might be of advantage for the practitioner to know, embody them in a private letter.

To sum up, the demands made upon the radiologist by practitioners are very varied. Some look upon him as guide, philosopher, and friend; others regard him as a necessary evil, to be looked on with suspicion and rigidly kept in his place. Both will ultimately get the kind of service they deserve.—I am, etc.,

London, W.1, Feb. 2nd. F. HERNAMAN-JOHNSON.

SIR,—Is it not time to end the recent vogue of baiting the radiologist in the medical press? Dr. Vincent Norman's letter does nothing to encourage a spirit of co-operation between the general practitioner and the radiologist, and tends to foster irritation in both. His remarks are obviously based on particular instances in which the radiologist acted outside the scope of his own province. But why argue from the particular to the general?

Few radiologists of any experience give information on points about which their opinion has not been asked. Radiologists should not be asked to give a diagnosis. They should be given all useful information about the case, and asked to provide further evidence on specified points. If the term "*x*-ray diagnosis" could be purged from our medical literature and the term "*x*-ray evidence" substituted, there would be less heard about misunderstandings between radiologists and other medical men. If a radiologist refuses to let the general practitioner see the radiogram, or causes offence in any other way, the remedy is obvious and lies with the general practitioner, but it is hardly a matter for ventilation in the press.

There is no doubt that in most cases the radiologist should not, and in fact does not, discuss the negative with the patient. Occasionally, however, the patient demands to see the negative, and to have it explained. In these circumstances it is doubtful whether the radiologist has the right to refuse, as presumably the patient is entitled to know the result of an examination for which he is to pay.

It is to be hoped that Dr. Vincent Norman's letter will not provoke radiologists to retaliate by airing their private grievances in public, for no good can come of it. We need more co-operation and less recrimination.—I am, etc.,

PAUL CAVE, M.B., B.S., D.M.R.E.

London, W.1, Feb. 2nd.

DIABETES WITH LOW RENAL THRESHOLD.

SIR,—I agree with Dr. Lawrence (February 2nd, p. 196) that a lowered renal threshold for glucose in diabetics is not as uncommon as published cases would appear to suggest; also, that it is a complication which may give rise to difficulties in treatment if the possibility of its occurrence is not borne in mind; but I should like to add that there appears to be a very definite chemical explanation of the condition in the majority of cases.

The detailed chemical analysis of the blood, as well as of the urine and faeces, I have been able to make in over one thousand cases of diabetes, has shown that a lowering of the renal threshold is usually associated with a subnormal percentage of calcium in the blood serum, and, as an increase in the calcium to the normal level has been found to be followed by a rise in the threshold, it would seem that a deficiency of calcium is the probable cause of the unusual permeability of the kidneys in the majority of cases. There is apparently no etiological connexion between the diabetes and the lowered threshold, as Dr. Lawrence rightly concludes, for I have met with examples where abnormal permeability, and an associated fall in the calcium content of the blood, developed some time after all hyperglycaemia and glycosuria had been fully controlled by diet or insulin. In my records there are, however, a few cases of diabetes with a low threshold in which analysis of the blood showed a normal calcium content, so that abnormal renal permeability for glucose may evidently arise from more than one cause.—I am, etc.,

London, W.1, Feb. 3rd. P. J. CAMMIDGE.

TONSIL AND ADENOID OPERATIONS.

SIR,—I should like to state my experience with the La Force tonsillectome. In common with Mr. Lindley Sewell, who first demonstrated to me the method of use and advantages of this instrument, I have employed it for the last eighteen months, and have practically discarded all other methods in its favour.

As any user of any form of guillotine will acknowledge there are certain tonsils which can only be removed by dissection, but whenever a guillotine can be employed successfully the "La Force" can also be used with the same success. The essentials of a successful tonsillectomy are: (1) complete enucleation; (2) freedom from haemorrhage; (3) absence of trauma and injury to the faucial pillars and soft palate; and (4) freedom, as far as possible, from deformity after the operation area has healed.

I have used the La Force instrument in 329 cases, and in that series have only had one where it was necessary to take any measures to arrest haemorrhage. This was in a woman, aged 27, whose tonsillar artery had to be clamped and ligatured. It is not an easy instrument to use at first, and for that reason my last 150 cases or so have shown much better results than the first; this I attribute to greater familiarity with the instrument and also to having increased the time of compression with the haemostat. The very great majority of cases have been absolutely bloodless, no haemorrhage occurring at the time, and none noticed later by the patient or nurse in attendance. Where post-anaesthetic vomiting has taken place no blood has been present in the vomited material.

Since there is no need to make compression on the tonsillar fossae, a marked feature in cases operated on by this method is the absence of sore throat following removal of the tonsils. For its successful use two factors are needed: (1) The services of a skilled anaesthetist; and (2) familiarity with the instrument. It seems to me that any method capable of producing such satisfactory results is worthy of a trial, yet if the views expressed by Mr. Aldington Gibb (January 19th, p. 132) find general acceptance no new methods will ever be tried, and all advances in surgical technique will come to a standstill.—I am, etc.,

Manchester, Jan. 21st. FRANK G. WRIGLEY.

SIR,—The problem of haemorrhage after tonsillectomy is not quite such a simple matter as some of your correspondents would make it appear.

I had a case, within the past fortnight, of a young woman, aged 30, whose tonsils I removed by gauze dissection under the critical eye of her own medical attendant. The tonsils peeled out without difficulty, and were removed quite completely. I packed each tonsil bed with cotton-wool for a minute or two—as I always do nowadays—immediately the tonsil was removed. After removal of the cotton-wool one side still bled smartly, so I picked up the bleeding vessel and tied it off with a ligature; the other side did not bleed at all when the cotton-wool was removed, so of course no ligature was applied. The patient's doctor and I satisfied ourselves that both tonsil beds were completely dry before the patient left the operating table. In twenty-four hours I was called to the patient because of severe haemorrhage from the side which was not tied; an injection of morphine and the application of hydrogen peroxide on swabs had had no effect, but after a good deal of trouble the haemorrhage was stopped, the blood-clot having been cleared out, cotton-wool soaked in haemoplastin packed in two or three times, and morphine given. (If this had not been effective I would have taken the patient back to the theatre and tied the blood vessel under an anaesthetic.) All went well for a week, when I was called to the patient again because of severe haemorrhage from the side which *had* been tied at the operation. The patient said that the bleeding was quite as severe as it had been from the other side; the injection of 1/4 grain morphine sufficed, however, to control this haemorrhage.

I said to the patient that obviously her blood was deficient in coagulating power; but she told me that she had had some teeth out six weeks previously, when her dentist had remarked how quickly the blood coagulated, and she had had no bleeding at all! I found also that her doctor had been giving her a calcium salt for some time before the operation. A blood examination revealed nothing abnormal.

My own opinion is that no patient should be allowed to leave the operating table until haemorrhage from the tonsil beds has ceased, whether this has been brought about by the application of gauze or cotton-wool, by an artery forceps, or by a ligature. In spite of the case detailed above I shall continue to ligate a vessel which does not stop bleeding when a cotton-wool swab has been packed in

for a minute or two. I learned to remove tonsils with a guillotine, but I do not think that anyone who has subsequently learned to dissect tonsils after a manner more or less resembling that of Mr. G. E. Waugh and Mr. Tilley would care to go back to the crudities of the guillotine. (The words "propulsion" and "avulsion" so cheerfully used by my friend Mr. Horgan simply make me shudder.) Besides, in the past year I have had regretfully to find septic pieces of tonsils present in two patients who within eighteen months had paid quite large fees to distinguished colleagues of mine to "remove" their tonsils with a guillotine—one of the patients had also had her uvula removed unintentionally. Everyone knows that in a clinic small pieces of tonsil may be left behind when twenty cases or so are being hurried through in an hour or two; but these two cases were private patients and the operators laryngologists of standing whose skill I know and respect, but whose preference for the guillotine I do not understand. The only disadvantage of tonsil dissection is that the surgeon is in the hands of the anaesthetist, who must be experienced in this class of operation.

Since this lengthy correspondence began on the subject of anaesthesia in tonsillectomy, may I say that in some sixteen years' experience I have had one death on the operating table during tonsillectomy, and in that case the anaesthetic was ether and the anaesthetist sufficiently experienced—the anaesthetic registrar at a teaching hospital; death was not due to haemorrhage, but apparently to shock; the *post-mortem* report called it "status lymphaticus."—I am, etc.,

London, W.1, Jan. 25th. R. SCOTT STEVENSON.

SIR,—The correspondence in the *Journal* upon the subject of haemorrhage after tonsil operations is of great interest, if only for the enormous divergence of the opinions expressed. Most of the letters are from surgeons who practise diverse methods and are prepared to draw the pen and defend their own particular procedure to the last drop of ink. Perhaps the experience of a general practitioner who has seen many of the throat surgeons in London at work may be of some interest.

Since the war I have had 221 cases of tonsillectomy in my practice performed by fourteen different surgeons, no two of whom have operated in exactly the same way. There have been only four cases of severe post-operative haemorrhage and eight cases of haemorrhage of a minor nature. In three of the four serious cases the guillotine has been the instrument of removal; the fourth was after dissection by forceps and curved scissors. I have never seen any trouble from ligatures, and fail to understand why bleeding points in the throat should not be arrested in the same common-sense way as in any other part of the body. Indeed, I remember vividly one patient whose throat at the end of the operation was festooned with ends of catgut, but neither undue soreness nor undue subsequent fibrosis occurred.

In children, particularly, it seems to me that too little attention is paid to the coagulation time of the blood, which my experience leads me to believe has wide variations. If my own children had to undergo this operation I would insist on the point being investigated, and, if necessary, the adoption of appropriate treatment prior to surgery.

In conclusion, I feel sure that, as in most other medical and surgical matters, there is no routine method of tonsillectomy that is applicable to all cases, *pace* the enthusiasts, but that each case needs consideration as to the best method of attack.—I am, etc.,

London, S.W.1, Feb. 4th. DESMOND MACMANUS.

SIR,—I have read with much pleasure the correspondence on tonsil operations. It happens that an exceptionally large proportion of my own tonsil cases are adults, since I live in an area where school medical inspection has not been at work, and so the cases are not "caught young," so to speak. I think dissection the operation of choice in adults, for (*a*) a skilled dissector will make a clean sweep in all cases, and (*b*) the guillotine fails frequently unless anaesthesia is pushed to an anxious degree. In my experience haemorrhage may be equally profuse with either method. I think we cannot exaggerate the importance of preventing haemorrhage. Even cases with a comparatively "mild" haemorrhage at operation may suffer from its weakening effects weeks later. Some time ago I saw two cases of lung abscess, one following a nose and the other a tonsil operation. I am inclined to attribute both to not sufficient attention to bleeding during the operations. Incidentally, I would like to ask if this lung complication can really be as rare as the literature, excepting American, suggests. Finally, I feel I can never attain the speed of several writers who apparently dissect in the time allowed by a dose of ethyl chloride—forty to sixty seconds. I think chloroform and ether, about equal parts, ideal, but to be happy in all cases I follow the stages of anaesthesia during operation.—I am, etc.,

Galway, Feb. 5th. CONOR O'MALLEY.

*** This correspondence is now closed.

PYORRHOEA ALVEOLARIS.

SIR,—In your leading article on pyorrhoea (January 19th, p. 115) you say, "Mucus may stagnate, but hardly normal saliva, which, from whatever source, is always fluid." But surely it is the normality of the saliva and not its fluidity which prevents any deposit? Have we not an analogy in the double solution and deposition of calcium in the form of stalactites and stalagmites, the solution depending on weak carbonic acid, so liable to change.

The condition of the saliva readily alters in health and disease, especially in digestive diseases; and in acute diseases mucin and lime salts quickly deposit round the teeth margins. The normal saliva is said to be mildly alkaline; but ordinary salivas seem to have a wide range of reactions. In some patients the reaction is alkaline, in others it is acid or even amphoteric. The tongue and saliva are responsible for the cleanliness of the mouth and will prevent deposits under normal conditions in healthy subjects. In addition, there is Nature's remedy for dental troubles—tooth and gum suction, which is sternly checked in early childhood; but even yet with some people the tongue is most sensitive to the needs of the mouth.

In discussing treatment Mr. Humphreys suggests saline massage, and says "the salt promotes a flow of serum into the pockets"; but it does more than this, as may be tested by dropping 10 to 30 grains of salt on the tongue and insalivating this for a minute before ejecting. There is an immediate increase of saliva, of mucin as well as of fluids, the mucin to counteract the effects of the irritant. Saliva flows freely for some considerable time afterwards and the reactions are modified, varying, of course, with the type of "common" salt used. Dentists have recommended a strong solution of salt as a dentifrice, and old-fashioned "strong salt solution" still holds its place as a throat and mouth wash.—I am, etc.,

Middlesbrough, Jan. 25th. J. M. MACPHAIL.

DENTAL SEPSIS.

SIR,—In your issue of February 2nd (p. 221) Dr. Brailsford states that I have misrepresented Mr. Humphreys's and Dr. Weston Price's views on the value of the radiogram. I do not agree. Mr. Humphreys's statement, "I believe radiographic evidence, taken alone, to be wholly inadequate and often misleading," proves to me that he does not consider *x* rays infallible. Dr. Weston Price states that more than 10 per cent. of septic teeth show no radiographical evidence of disease. That is enough for me; I am not in a position to challenge such an authority. One has only to take the case of a granuloma in line with the root and not projecting below it, to realize the shortcoming of *x* rays for (at least) certain teeth. The granuloma so often found is a protective mechanism; if the virulence of the organisms is such that no granuloma forms there will be no radiographic signs. I have had such a case—a gold-crowned tooth, which showed no *x*-ray or clinical signs of disease, but which, when extracted, revealed a pulp chamber full of pus and a granuloma.

It was removed on account of a slight peculiar pain which developed during an attack of lymphangitis. This pain, which may be felt for perhaps a day or two, is very characteristic and easily recognized by anyone who has had previous experience of it.

I sincerely hope that in his last paragraph Dr. Brailsford did not infer that I am an advocate of wholesale extractions. I hold that many of the cases which were cured by such would have had the same good outcome with removal of a few teeth or possibly a single tooth. He concludes with a surprising inference about root-filled teeth. If the pulp was alive at the time of exposure and was treated aseptically there is little danger, comparatively speaking. Surely, however, a dead tooth which has had no root filling is a far more serious problem than one which has had this treatment, as the majority of the space is filled with gutta-percha, though this undergoes a 15 per cent. shrinkage (Weston Price). To quote from an excellent but badly titled article by Dr. A. C. Gould,[1] Ulrich finds that 83 per cent. of 1,350 cases of dead teeth in ill patients showed evidence of rarefaction, whereas 68 per cent. of those treated by root fillings revealed that change. Black's figures are even more striking; only 9 per cent. of those with good root fillings demonstrated evidence of disease, while 63 per cent. of those with poor ones showed it. In this connexion we must remember that Mr. Sprawson holds that the drugs employed in the root treatment may themselves be responsible for rarefaction.—I am, etc.,

London, W.1, Feb. 2nd. A. P. BERTWISTLE, F.R.C.S.Ed.

DEBILITY IN CHILDREN AND CYCLICAL VOMITING.

SIR,—In the *Journal* of January 26th (p. 150) there appears an interesting and important article on the above subject by Dr. Osman, in which he describes the biochemical findings in the large class of debilitated children attending hospital, and states that they show similar findings—perhaps to a less degree—to the cases of cyclical vomiting supposed to occur chiefly in the offspring of the more highly educated and well-off people with nervous instability—namely, acetonuria—and that these debilitated hospital patients keep free of all the ailments enumerated in the article by the simple means of increasing their sugar intake.

Although Dr. Osman confines his remarks to children, I can, as a result of work along these lines for several years, confirm his findings as regards the important part played by disturbed hepatic chemistry (of which acetonuria is often a frequent finding) in the debility of adults as well. In fact, my conclusions are that this metabolic aspect of disordered health, as a predisposing cause to diseases of varying kinds (including those of epidemic type), is an extremely important one, and probably is the key to the solution and prevention of many such diseases.

But I cannot confirm the satisfactory results which Dr. Osman gets by his giving simply a more liberal ration of sugar. One would think that a glut of sugar, sweets, and carbohydrates would be more likely to be present in such cases. Although the giving of alkalis and glucose is the routine adopted in all such cases, instances occur in children and adults where sweet things are greatly disliked and absolutely refused. One would hardly expect such complete aversion to something which the body economy urgently needs.

Again, although the suggestion made that in those cases there may be an overaction of the adrenals—turning out the glycogen store of the liver would fit in with the need for more sugar—yet this hardly seems to fit in with another aspect of such cases, where a young child belonging to the type of family with a history of the migraine-eczema-cyclical vomiting type gets severe asthma attacks following on the attacks of liver upset with acetonuria. An increased adrenaline content in the blood should prevent such an occurrence.

Dr. Osman mentions the subject of transient strabismus in debilitated children, it is often more lasting, and, according to the mothers, it seems to vary with the state of health of the child. May it not even be a factor in inducing strabismus in children of pre-school age? It certainly is not confined to children, as I have seen several cases in adults, where the sudden onset of diplopia, often accompanied by sickness, may be very misleading, unless one is on the look out for such causes. I saw last week a woman, aged 65, who suddenly developed a complete paresis of the internal rectus of one eye with resulting embarrassing diplopia due to this cause; it lasted two to three days.

With regard to acetonuria and its treatment by sugar, Green's *Encyclopaedia of Medicine*, after recording the various conditions in which it can be found, which include toxic gastro-intestinal disorders, starvation, and indigestion, especially in children, continues:

> "Its occurrence in these cases has been ascribed to organismal toxaemia, and auto-intoxication—but the view held by most of those who have paid particular attention to the subject is that in these, as in other cases, defect in the oxidation of carbohydrate is to blame."

Since this seems correct one cannot see that the administration of more sugar alone is the correct treatment of such cases.

A point not mentioned, but which I am certain has an important relation to the onset of attacks of this type of disorder, is changes in atmospheric conditions. At certain times of the year, among one's patients where such troubles tend to recur periodically, if a few show relapses, then one can count on hearing of all the others having relapses also, sometimes almost on the same day. The effect on health of changing meteorological conditions is not confined to this class of case, but is noticeable in many other patients who do not habitually exhibit this type of constitution, but whose systems show similar changes, when so acted on, to those of the cyclical vomiting child. This is what occurs in so many people who get run down, especially prior to epidemics of colds and influenza. I find confirmation of this view of susceptibility to infection in the *Epitome* of January 26th (para. 82), in which it is stated the epidemics occur because the soil is prepared by altered meteorological changes and not perhaps so much because of the increased virulence of organisms. Some seasons appear to be more severe than others in acting adversely on people's health; the last six months have been particularly so, as evidenced by the large number of obscure cases, of which the one common finding was an acetonuria, and this in spite of a glorious summer.

Dr. Osman's reference to the view held by Professor Vining of Leeds as to the pre-rheumatic child being a case of toxic debility, and his suggestion that all that is required to restore such children to health and prevent the onset of acute rheumatism is a more liberal supply of sugar, calls for some comment. That the urinary findings resemble some of Dr. Osman's findings I agree, but that the well-balanced diet suggested by Professor Vining converts itself into just an extra supply of sugar I do not believe. In what way would this liberal supply of sugar clear up the unhealthy offensive stools of those toxic, debilitated children? The acidophilic group of bowel organisms do not so easily get the preponderance over the proteolytic group by simply giving more sugar. When Professor Vining suggested this view some years ago I gave it my hearty support, since it was the first time I had heard any authoritative statement of a view I had come to hold for some years previously.

That the problem is as easy of solution as Dr. Osman states I cannot believe. The subject is one requiring much more detailed biochemical investigation than the finding of acetone bodies in the urine. No reference is made to other chemical findings in the urine of these cases, nor to the findings (microscopical) in a centrifuged deposit. I think the interpretation of the bodies found in this class of case by the microscope would give important clues as to the links in the chain of the disturbed metabolism. The problem, as it appears to me, is one which not only has reference to the intestinal hepatic chemistry, but reaches out to the *p*H of the blood and the calcium content thereof; it also includes the thyroid-parathyroid mechanism

[1] Symptomless Root Canal Filled Teeth. *Journ. Amer. Med. Assoc.*, 1928, i, p. 1532.

of body defence, and its effect on regulating the acid-base content of the blood. It is interesting in this connexion to recall a statement made, I think, by Llewellyn Jones, that many rheumatic cases are subthyroidics.—I am, etc.,

Darlington, Jan. 26th. R. CHALMERS, M.D., F.R.C.S.Ed.

SIR,—In his article published on January 26th (p. 150) Dr. Osman does not explain why acidosis is present in the cyclical vomiting associated with debility in children, otherwise he would have told us how it is that the administration of sugar alleviates the symptoms.

He states that cyclical vomiting is due to depletion of the glycogen reserves of the liver; this cannot cause acidosis. No doubt the glycogen reserves are depleted, and for a very good reason; it is not the cause, however, but is only a phenomenon resulting from imperfect metabolism. It is the acidosis which is responsible for the symptoms, and this, in turn, is due to the imperfect combustion of fats. One has only to remember that the complete combustion of fats cannot occur without the presence of sugar, and the solution is obvious. So many grams of sugar are necessary to burn so many grams of fat, so that when sugar is scanty or fat over-abundant the fats are imperfectly broken down and acidosis is brought about.

I notice in the same issue of the *Journal* (p. 165) an annotation on the dangers of cod-liver oil; after mention of the deaths of two children who were given the oil the question is asked: "Is it possible . . . that contributing to the toxic symptoms was a ketosis produced by excessive fat feeding?" I do not think there is any doubt about it at all. Dr. Osman rightly states that the child subject to cyclical vomiting is especially liable to delayed chloroform poisoning. This is doubtless so, seeing that chloroform is a fat solvent and the blood and tissues are flooded with fat. Glucose, again, should be given here, and would rapidly restore the normal metabolism of the two substances—indeed, it should always be administered before anaesthesia with chloroform or ether.

In an article on "Glycosuria and cancer" appearing in the February issue of the *Practitioner* I have gone more fully into this subject.—I am, etc.,

Upholland, nr. Wigan, Jan. 31st. J. THOMSON SHIRLAW.

AMAUROTIC FAMILY IDIOCY.

SIR,—I must thank Dr. Robert Platt for his replies (January 26th, p. 177) to my queries upon the pedigree of amaurotic family idiocy (January 19th, p. 101). Unfortunately the only known marriage between relatives is that shown in the table—the great-grandparents of the latest case. Any relationship between Rebecca and her husband, if it exists, must have been more than four generations back at the very least, and probably many more, and the same applies to her father and mother. The families concerned came from widely separated places in Eastern Europe, a thousand miles or more apart, at a time when travel facilities and inclination were almost non-existent, particularly in Russia.

If there were originally an equal number of DD and DR types the probable DR's in the next generation are in the proportion of six to nine DD's, and in succeeding generations this figure becomes further reduced both by geometrical progression and by the greater chance of marriage between DD's. The disease, then, should be of declining incidence, and at one time have been so prevalent as to characterize a scourge to a race instructed to multiply exceedingly; it would be surprising if it were so, and yet had passed unnoticed until 1881.

Assuming the Mendelian law is algebraic in application, is it restricted to combinations of a simple order? Is it not probable that there are tendencies of fractional powers which are only elevated to the virulence of recessive characteristics by repeated in-breeding (as in retinitis pigmentosa) or fortuitously by the union of the great-grandparents in this case, and that, once so raised, may assume a "subdominant" quality?

It is naturally a delicate matter to probe into the past history of mental deficiency in any family, especially one indirectly concerned, such as that of Jacob's wife (from whom the nature of the trouble is at present being withheld), but I believe that such negative facts as I have been able to elucidate are true in substance; a medical man of their own race might be in a more favourable position to obtain fuller family histories.

It is difficult to dogmatize on a single case, but I think in so rare a disease it establishes its hereditary nature, even if it does not seem easy to reconcile it with the Mendelian law as at present accepted.—I am, etc.,

Hull, Jan. 28th. D. D. STENHOUSE STEWART.

LIPIODOL.

SIR,—We quite agree with Dr. James Adam (February 2nd, p. 225) that the oral route for administering lipiodol is an excellent one. In our book we describe it as the simplest and, in some cases, the most pleasant method, and the method of choice in many cases. The technique that we describe is simpler than that favoured by Dr. Adam. It is far from easy, however, in very young children, and therefore we advocate, with Dr. Leonard Findlay, who has had a large experience with children, the employment, of brief general anaesthesia. We cannot but feel that to hold the child down in any way must be harmful psychologically to the child.—We are, etc.,

F. G. CHANDLER,
W. BURTON WOOD.

London, Feb. 2nd.

ASTHMA.

SIR,—If Sir James Dundas-Grant will honour me by referring to my book published in 1923 he will see that I am fully conversant with the work of Brodie and Dixon and the nasal reflex as a cause of spasm of the bronchial muscle.

A variety of operative procedures on the nose and its accessory sinuses have led to the cure of individual cases of asthma; sometimes the benefit received has been out of all proportion to the triviality of the surgical interference—a touch with the cautery, or the removal of some insignificant spur. On the other hand, there is a type of asthma in which gross lesions in the nose are almost invariably found, and in which the prognosis is as bad as it can possibly be. I refer to the "aspirin sensitive type." No one who sees large numbers of asthmatics can fail to recognize this type sooner or later. Dr. Francis called attention to it some years ago. Apart from many other symptoms which go to make up this clearly defined type of asthma, patients sensitive to aspirin almost invariably suffer from nasal polypi. Can Sir James help us by suggesting why this should be so? Have the rhinologists any theories as to how polypi are formed, because, if they have, the information may give some clue to the cause of the dreadful attacks of asthma from which these people suffer.

We have, then, a great variety of proceedings which may cure asthma and, to mention a few more, I have known relief follow the removal of an appendix, the excision of an infected gall-bladder, and the enucleation of unhealthy tonsils, which brings us back to the starting-point that "there is not any one form of treatment which is effective in all cases of asthma," and to which we may well add "there never will be." In answer to Surgeon Rear-Admiral Jean's letter, I may say that I am not quibbling with these platitudes, but with the method of the press campaign that gratuitously informed the public that there was no cure for asthma.

Lastly, lest I should appear to be overstating my case, may I refer your readers to the account of the meeting at the Mansion House, as recorded in your issue of January 19th (p. 123). Dr. Arthur F. Hurst, chairman of the Medical Advisory Committee of the Asthma Research Council, said: "The one thing he felt sure about with regard to asthma was that there was still no cure for it." While sympathizing with Dr. Hurst's personal experiences

as an asthmatic, I do not consider his statement correct, nor a fair estimate of the prognosis of asthma as treated by modern methods.—I am, etc.,

London, W.1, Jan. 28th. FRANK COKE.

SIR,—I was pleased to see a letter from Mr. Frank Coke in your issue of January 19th (p. 133). I fail to see why the public should be expected to subscribe to a fund which states in its propaganda that there is no cure for asthma. The most difficult thing to understand is what exactly is meant by "there is not any one form of treatment which is effective in all cases of asthma." Is there any disease, or symptom of disease, to which this is not applicable? As a matter of fact, every case of asthma which is carefully and thoroughly detoxicated will derive appreciable benefit, independently of such other treatment as may be indicated. I have been studying asthma for the past ten years, and since I have had the opportunity of observing Dr. James Adam's work at first hand I approach my cases with far greater confidence of a cure than I would in treating any other chronic condition.

Have the Asthma Research Council sifted the evidence of the men in this country who claim to be able to cure or even satisfactorily treat asthma? If this were done I am sure it would be seen that asthma is as treatable as any other condition, and that cures are being regularly obtained. The reason this work is not generally known is that only societies may raise their voices, whilst the individual spends a good deal of his time in avoiding publicity, with loss to humanity as a whole.

I would humbly suggest that we have a greater knowledge of this subject in this country than anywhere on the Continent, or, for that matter, in the world, with the possible exception of America, and that if this knowledge is used and developed and encouraged the conquest of asthma is immediately at hand.—I am, etc.,

F. HARRINGTON, M.R.C.S., L.R.C.P.

Newcastle-upon-Tyne, Jan. 23rd.

SIR,—I am glad that Sir James Dundas-Grant has drawn attention to the good results of nasal treatment in relieving asthma. The matter requires emphasis. In those asthmatics who have a deflection of the nasal septum, especially an upper deflection, submucous resection of the whole or of the upper part should certainly be undertaken if a reasonable trial of other forms of treatment has failed. The result of the operation is often surprisingly satisfactory. Two recent cases are illustrative. They were both middle-aged, rather frail women, for whom many treatments had been tried without avail. One had developed into a constant invalid, the other into a periodic one. The removal of the septum has practically cured the asthma and changed the patients into comparatively strong, active women.—I am, etc.,

Bath, Jan. 27th. H. NORMAN BARNETT.

AN APPEAL BOARD FOR SCIENCE.

SIR,—The most important reform needed in science is the formation of an appeal board to establish facts, particularly those of great importance to the nation. It is very doubtful whether anyone would be able to establish the fact of the circulation of the blood at the present time had this not been already done, or whether any young man discovering a fact that would lead to the cure of cancer would obtain any recognition in his lifetime. Few are likely to be as fortunate with their discoveries as I was with mine. Having discovered shortly after I was qualified that 50 per cent. of the dangerously colour-blind could get through the wool test, and that about 50 per cent. of those rejected by it are practically normal sighted, it only took me twenty-five years' persistent effort, with the help of the *British Medical Journal*, and against the strongest opposition of the Royal Society and Cambridge, to establish the fact that one colour-blind person could pass the wool test, a fact which could have been proved in a quarter of an hour.—I am, etc.,

London, N.W.2, Jan. 23rd. F. W. EDRIDGE-GREEN.

PROPHYLAXIS AND TREATMENT OF DIPHTHERIA.

A Correction.

SIR,—Professor S. Korshun of the Elias Metchnikov Institute for Infectious Diseases of Moscow has drawn my attention to an error in my paper on this subject in the *Journal* of August 25th, 1928 (p. 337). The Russian town where fatalities were caused through the administration of diphtheria toxin in mistake for anatoxin was not Moscow, as stated by me, but Tashkent. At Moscow, Professor Korshun informs me, more than 25,000 children have been immunized by a neutral toxin-antitoxin prepared according to his method, without any fatalities.—I am, etc.,

London, S.W.6, Feb. 4th. J. D. ROLLESTON.

Obituary.

F. DE HAVILLAND HALL, M.D., F.R.C.P.,

Consulting Physician to the Westminster Hospital.

As announced briefly in our last issue Dr. Francis de Havilland Hall died at his home at Twickenham on January 27th. He was born on April 10th, 1847, the fifth son of William Hall, a successful general practitioner at Tottenham. In childhood he was familiar with the life of a family doctor of the old school, and came into daily touch with the routine of surgery and dispensary, the day-book and the ledger, thus gaining a valuable foundation for the work of a busy hospital physician and consultant. From those early days sprang his practical sympathy with members of the medical profession, and in after life his help and advice were constantly sought by colleagues on personal matters of health.

De Havilland Hall entered as a student at St. Bartholomew's Hospital in 1866, where he was clinical clerk to Dr. Farre and Dr. Patrick Black, and dresser to Sir James Paget, his house-surgeon being H. T. Butlin, afterwards Sir Henry Butlin, President of the Royal College of Surgeons and of the British Medical Association. Having obtained the M.R.C.S.Eng. and L.S.A. diplomas in 1868 Hall graduated M.B.Lond., and while house-physician at St. Bartholomew's passed his final M.D. examination in 1872. Two Bart's physicians who deeply impressed themselves upon him were James Andrew and Samuel Gee. In 1875 he was appointed medical registrar to the Westminster Hospital, and began his lifelong attachment to that institution, which he served in succession as assistant physician, physician, consulting physician, vice-president, and member of the house committee. He became a member of the Royal College of Physicians of London in 1873, was elected a Fellow in 1881, acted as examiner in medicine for two periods, was a member of the council from 1901 to 1905, censor in 1908–10, and Lumleian Lecturer in 1913, choosing as his subject "Intrathoracic aneurysm." In 1903–4 he held office as president of the Medical Society of London.

Dr. de Havilland Hall married in 1879 a niece of Sir Thomas Smith, at that time surgeon to St. Bartholomew's, and for the next forty years his home was at 47, Wimpole Street. He is survived by his widow, one son, and three daughters. Both sons served with distinction in the war, and the younger died of wounds received at Salonica.

We are indebted to Mr. WALTER G. SPENCER, consulting surgeon to the Westminster Hospital, for the following appreciation:

De Havilland Hall, after holding residential posts at St. Bartholomew's Hospital, gained an insight into private practice. Appointed medical registrar and tutor at Westminster Hospital, then elected to the staff, he was for nearly twenty years physician to out-patients; in consequence he was led to adopt what became characteristic of his teaching, precise detail as to medical treatment and prescribing, categorical instruction in the manner an examinee must answer questions, and various modifications of hospital practice necessary in private practice. Later, when as full physician he held clinics in the wards, his special experience enabled him, in a manner rarely attained by his junior colleagues in tutorial classes, to consider the needs of students about to embark in general practice.

De Havilland Hall, in a number of publications, proved himself a clinical observer of the first class. He had, in addition, two sidelines—laryngology and life insurance. Until he became full physician he conducted the laryngological department, and with his close friends Butlin and Felix Semon was among the founders of the Laryngological Society. He wrote a popular textbook on *Diseases of the Nose and Throat*, and when a new edition was called for Mr. Herbert Tilley joined him and added much on surgery. As medical officer to the Law Union and Rock Insurance Companies, he continued work after his retirement from Wimpole Street. The loss of de Havilland Hall from the consulting staff of Westminster Hospital, following upon that of Mr. William Wroughton from its house committee, removes the last of the personnel as it existed forty-two years ago. Hall kept up a continuous intimacy with many members of the St. Bartholomew's staff, and I owed much to him for the introduction he gave me on my appointment. Throughout our time together we corresponded, physician with surgeon; Hall was quick in coming to a diagnosis as to whether a case would be benefited by medical treatment. Alternatively he was on very many occasions prompt in giving me opportunity for a surgical operation early. His optimistic temperament was subjected of late years to many trials. Chronic diabetes had to be held in check and abstemiousness, for which he had always had a personal inclination, as regards food as well as drink, was increased. The sudden death of his great friend Frederick Palmer cut off the companion of his weekly walks, and finally he had to suffer much from malum coxae senile. When last we met in the board room about a month ago, he, with two sticks, hardly able to hobble one hundred yards, was just his cheery self, full of reminiscences, and hopeful that the worst of the pains had passed off.

"C. B. G.," a friend of fifty years' standing, writes:

Dr. Hall had a signally gracious and happy style and manner, so transparently sincere, high-minded, and true that friends and patients alike trusted him through and through, and as a result he was rightly rewarded with a fine consulting practice of high order, which his painstaking and always up-to-date scientific knowledge amply merited. Although saturated with the love of his profession, Dr. Hall, like all wise men, had many and great interests outside it. His reading was wide and extensive; all historical and biographical and much theological matter was keenly read, English literature of a hundred or so years ago especially appealing to him. He was a devoted "Johnsonian," and a life member of the Lichfield Society, keen also on the Huguenots Society, which he joined in 1904 and whose meetings he delighted to attend. He was a capital talker, with a large range of general information, and also a good listener and a most acceptable and congenial companion. Epsom College owes him much, and so does the Society for Relief of Widows and Orphans of Medical Men, also the Medical Sickness, Annuity, and Life Assurance Society, of which he was chairman from 1893 to 1911 and president from 1912 to 1920, when the society was changed into a mutual company.

The funeral service, which took place at Holy Trinity Church, Twickenham, on January 30th, was attended by many of Dr. de Havilland Hall's old friends in the profession, as was also a memorial service held on the same day at All Saints' Chapel, Westminster Hospital. The interment was at Teddington Cemetery.

THOMAS DUNCAN GREENLEES, M.D.,

Formerly Medical Superintendent, Grahamstown Asylum.

WE regret to announce the death of Dr. T. D. Greenlees, which occurred at his home at St. Leonards-on-Sea on January 22nd. He was among the best-known members of the medical profession in the Hastings district in recent years, and had attained a prominent place in the British Medical Association, having served as a member of the Central Council with only two intervals—each of a year—from 1908 to 1925. In earlier days he was a leading figure in the affairs of the Association in South Africa.

Thomas Duncan Greenlees received his medical education at the Universities of Glasgow and Edinburgh, graduating M.B., C.M.Ed. in 1882, and proceeding M.D. in 1901. He devoted himself largely to psychological medicine, and spent the greater part of his career in work in various mental institutions. He was at one time assistant medical officer at the City of London Asylum at Stone, and afterwards went to South Africa as medical superintendent of the Grahamstown Asylum, in which position he spent a number of years. Later he became resident physician and superintendent of the Fenstanton Asylum at Streatham Hill, and subsequently, six or seven years ago, he went to live at St. Leonards-on-Sea. He was the author of a number of contributions to current literature on questions relating to insanity, and in 1885 was a prizeman of the Medico-Psychological Association. He was also a Fellow of the Royal Society of Edinburgh.

The record of Dr. Greenlees's services to the British Medical Association extends from 1927 back to 1893, when he became, during his stay in South Africa, honorary secretary of the then Grahamstown and Eastern Province Branch, in which he later held office successively as honorary treasurer and as a member of the Branch Council for several periods. His connexion with the Central Council began in 1908, when he was elected as representative of the Cape of Good Hope Eastern, Western, and Border Branches, remaining a member until 1918. He again served on the Council in the year 1919–20 and from 1921 to 1925, and during this latter period was particularly associated with the work of the Dominions Committee. At the Annual Meeting of the Association in London in 1910 he was vice-president of the Section of Psychological Medicine and Neurology. Dr. Greenlees had been also chairman of the Norwood Division in 1910–11, and deputy representative in the Representative Body of the Hastings Division in 1927, and had served upon the executive committees of both these units.

Outside his professional affairs he was a member of the Freemasons' organization and a faithful adherent of the Baptist Church, in which he was a deacon. He leaves a widow, a son, and two daughters. A colleague writes: The Hastings Division of the British Medical Association has sustained a severe loss by the sudden death of Duncan Greenlees. He had been in indifferent health for a long time, and his Divisional activities had as a consequence been much curtailed. His zeal for the Association was such that he would often attend meetings when, as everyone knew, he should have been conserving his strength to fight his old enemy, asthma. This serves to illustrate his character. His love for his profession, his brethren, and the Association was very keen. His colleagues will sorely miss his kindly advice and his ready wit.

JOHN OWEN, M.D., F.R.C.P.,

Physician, Liverpool Royal Infirmary; Lecturer in Clinical Medicine, University of Liverpool.

WE have to announce with much regret the death, on January 23rd, from acute pneumonia, at the age of 58, of Dr. John Owen, one of the leading figures in medicine in Liverpool, where he held many important offices.

John Owen received his early education at Beaumaris Grammar School, from which he passed to University College, Bangor, proceeding thence to study medicine at University College, Liverpool, and, later, at Guy's Hospital. In 1897 he obtained the diploma L.S.A., and graduated M.B.Lond., proceeding M.D. in 1906, having, a few years before, obtained the D.P.H.Camb. In 1908 he became a Member of the Royal College of Physicians of London, and in 1923 he was elected a Fellow. After first qualifying he held a resident appointment at the Royal Southern Hospital, Liverpool, and then practised for a year or two in partnership at Blaenau-Festiniog. During the South African war of 1899–1902 he served as a civil surgeon in the South African Field Force, and at the conclusion of hostilities returned to London. While acting as medical officer to the St. Pancras Dispensary he continued his studies at Guy's Hospital, and then began practice as a physician in Liverpool, where his ability was soon recognized. At the time of his death he was honorary physician

to the Liverpool Royal Infirmary, and lecturer in clinical medicine at the University of Liverpool. He was also honorary consulting physician to the Home for Epileptics, Maghull, the Liverpool Eye and Ear Hospital, the Liverpool Dispensary, the School for the Blind, and the Southport Infirmary. At an earlier period he had been honorary physician to the Liverpool Hospital for Consumption, the Liverpool Northern Hospital, and the Stanley Hospital. He held a commission in the R.A.M.C.(T.F.) for many years, and during the war of 1914–18 served in India and Mesopotamia, retiring with the rank of major and the Territorial Decoration.

Dr. Owen's interest in professional matters was concerned mainly with the scientific side of medicine. His contributions to its literature, in the form of articles written for various periodicals, were largely on neurological subjects. He was a member of the Association of Physicians of Great Britain, and of the Liverpool Medical Institute. At the Annual Meeting of the British Medical Association at Liverpool in 1912 he was honorary secretary of the Section of Medicine. Dr. Owen was unmarried, but is survived by his mother, to whom he was devoted, and for whom deep sympathy is felt by a large circle of friends in Liverpool and elsewhere.

Sir JAMES BARR writes from Cannes:

The death of Dr. John Owen must cast a gloom over the medical profession in Liverpool, since he was universally beloved both by his professional brethren and the public. To me his death came as a great shock, as it is only about two weeks since I had a long letter from him on a subject in which we were mutually interested, and he then gave no indication of any impairment in his usual good health and vigour. John Owen, although very unassuming, knew his work well, and was extremely careful both in diagnosis and treatment. He was a man who inspired confidence—a confidence which was never misplaced. He was thoroughly imbued with the best traditions of the medical profession, and was ever ready to lend a helping hand to those in distress without any ulterior motives. His charitable deeds in the profession and outside will keep his memory green in many a household. On my return to Liverpool I shall sadly miss another old and valued friend.

Colonel A. W. SHEEN writes from Cardiff:

I am minded to write a tribute of warm affection and regard, shared, I know, by all his war comrades, to the life and memory of John Owen. When I commanded the Welsh Hospital in India, of 3,000 beds, "Major John," as we all knew him, was in charge of the Medical Division. His good work, his kindness, and his personal charm endeared him to all. And there were in his character special traits of modesty, humour, and fearlessness. The last was shown by his zeal for "tiger," and by some feeling of sorrow in him that his lot had not been cast in a more active theatre of war. But duty was paramount with him: our change of destination from France to India he accepted with willing cheerfulness, and although, later, the charge of a hospital ship brought him in contact with Mesopotamia, yet the field of battle did not come his way. I only knew of his death from a notice in the *Times* on the day of his funeral, a death which I feel must have been contributed to by devotion to his work, in which he never spared or thought of himself. His loss will be felt by all the many with and for whom he lived and worked in Liverpool, and not least by those who knew his sterling worth and character by friendship and comradeship in the days of war.

C. HUBERT ROBERTS, M.D., F.R.C.P., F.R.C.S.,

Consulting Surgeon to Queen Charlotte's Maternity Hospital and the Samaritan Hospital, London.

WE regret to announce the death of Dr. C. Hubert Roberts, which took place suddenly at sea near Denmark on January 29th, in his sixty-fourth year.

Hubert Roberts, after leaving Bedford School, studied medicine at St. Bartholomew's Hospital, where he was a brilliant student. He gained the junior and senior scholarships in 1885 and 1886, and ultimately won the gold medal in the M.D. of the London University. Soon after qualification he decided to specialize in obstetrics and gynaecology, but was disappointed that his own hospital offered no prospect of a vacancy on the visiting staff. But he was appointed to Queen Charlotte's Hospital and the Samaritan Hospital for Women, where he continued an active member of the honorary staffs until his retirement under the age rule. He was also gynaecologist to the staff of St. Luke's Hostel, and acted as examiner to the English Conjoint Board and other examining bodies.

During the war Roberts, being then well over age for active service, performed useful and arduous work as accoucheur to Lady Howard de Walden's Hospital for officers' wives, and also as a member of the visiting staff of the Epsom War Hospital. He took an active interest in the affairs of the Royal Society of Medicine, and especially the Section of Obstetrics and Gynaecology, of which he was for some time vice-president, after having held the post of secretary and other offices. He was secretary of the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association in Sheffield in 1908. His writings were numerous, and began with a book published in 1901 on gynaecological pathology. Based on his lecture notes, this proved to be a valuable and successful publication.

Roberts's clinical experience was unusually wide, especially in obstetrics. In his earlier years at Queen Charlotte's Hospital he developed a reputation for his manipulative skill in the delivery of difficult cases. There can be very little in the whole range of obstetrics that Roberts had not seen and treated. His views in clinical obstetrics were sound and conservative, and he had no patience with ill-considered opinions and rash methods of treatment. As a gynaecological operator he was not at his best in recent years. While sound in diagnosis his surgical technique was never facile or flexible, and he often gave the impression that operative work was anxious and laborious. But it was as a teacher that Roberts excelled. He enjoyed his weekly round of the wards at Queen Charlotte's probably more than any other part of his work, and there will be many old students and nurses who remember his characteristically jovial style: stories, banter, and reproof all mixed up with the subject of the lecture in a way which compelled attention.

Roberts was a kindly, impulsive man, who made friends freely and who detested a quarrel; indeed, he would go very far to maintain agreement in a threatened dispute. He began life with great promise of a brilliant career, but those who knew him well in later years felt that he suffered a certain amount of disappointment in not having achieved perhaps all he hoped in the ambitious days of his youth.

JOHN ADOLPHUS SHARP, M.R.C.S.,

Consulting Surgeon to the Derbyshire Royal Infirmary, Derby.

WE regret to announce the death of Dr. John A. Sharp, which occurred at his home in Derby on January 26th, in his eighty-second year. He was the doyen of the medical profession in his county, and one of the oldest practising medical men in Great Britain, having continued his regular activities until within two months of his death.

John Adolphus Sharp was born at Maidstone in 1847, and received his medical education at Guy's Hospital, obtaining the diplomas L.R.C.P., M.R.C.S., and L.S.A. in 1868. After holding a resident post at Guy's he became house-surgeon in the old Derbyshire Infirmary, and a few years later set up in practice at Derby. He soon resumed his intimate association with the Infirmary on his appointment as honorary surgeon upon its staff. In this capacity he played an important part in the development of the institution, which was afterwards given the name of the Derbyshire Royal Infirmary. When—some forty years ago—the scheme for its reconstruction was in course of preparation Dr. Sharp made a study of many hospitals on the Continent with the object of ensuring that the plans—in the preparation of which the architects had the benefit of his co-operation—should incorporate the then most recent developments in hospital construction. In 1896 the state of his health compelled him to retire from practice for the

time being, and he went to live in the South of England, taking this enforced leisure as an opportunity to pursue a special course in bacteriology in London. Ten years later, on the death of his successor in practice, he went back to Derby and resumed work there. He renewed his connexion with the Royal Infirmary, in which he was made an honorary consulting surgeon, and until very recently played an active and useful part in its management. He leaves a widow, one son—a medical practitioner—and one daughter, whose husband is also a member of this profession.

A colleague writes: Dr. Sharp was not only held in the highest regard by his brother medical men, but also in the greatest esteem and affection by his patients. In spite of his advanced years his activity was extraordinary, and he was an exceptionally sound and painstaking practitioner. Although one of the old school, he nevertheless kept himself well up to date in modern methods of diagnosis and treatment. His striking personality made itself felt by all who were brought into contact with him, and his well-known and venerable figure will be greatly missed in Derby. He was a member of the British Medical Association for over fifty years, and for a period was the local secretary. Great public interest was taken in his funeral, which took place on January 30th, and St. Andrew's Church was filled with sympathizers. Among those present were representatives of the board of management and medical and nursing staffs of the Derbyshire Royal Infirmary, a large number of his professional colleagues, prominent Derby citizens, and city councillors. The Rev. T. S. Jagg, chaplain to the Derbyshire Royal Infirmary, paid a striking tribute to a life which, he said, had been spent in a great work for the town and its people.

VICTOR PLARR, M.A.,

Librarian, Royal College of Surgeons of England.

MR. VICTOR GUSTAVE PLARR, poet, man of letters, student of human foibles, and librarian to the Royal College of Surgeons of England, died on January 28th at his home near Wimbledon, suddenly and unexpectedly, in the sixty-sixth year of his age. He always had the air and stoop of a student, but of late his friends, of whom he had many, both at his College and his club (the Athenaeum), noted that he stooped more, and walked with a slower step, but they took no alarm, for he was a man who smiled on life even when things went awry with him. His Council gave him three months' leave of absence in order that he might regain strength, but in spite of all attention given to him by his medical attendants and devoted wife recovery never came.

The post held by Mr. Plarr was established just over a century ago, and he was the fourth to hold it. His immediate predecessor was Mr. James Blake Bailey, who established a great tradition—the tradition that every visitor to the library was to be welcomed, made comfortable, and helped to the utmost of its resources. On Mr. Bailey's death in 1897 Mr. Plarr, who was then librarian to King's College, Strand, was appointed his successor, and, as the many thousands who have used the library in the past thirty-one years will gladly testify, under him and his able staff of assistants the Bailey tradition has been continued and extended. The card catalogue which was begun by Mr. Bailey was completed; a full list of all the precious manuscripts in possession of the College was compiled and kept up to date. From time to time, with the permission of his Council, he published interesting extracts from the stores at his disposal—letters of the Hunters, of Dr. Matthew Baillie, of the Hunter-Baillie family, letters of Sir Walter Scott, of Joanna Baillie, and of Sir Edward Jenner. He compiled a complete list of the lectures which had been given at the College during the nineteenth century, and of the professors and lecturers who had given them. His greatest task was the compilation of a roll of the Fellows of the College; he wrote biographical notices of 2,500 of them. As a biographer it was the personality of a Fellow which appealed to him; the discoveries a man made, the advances which he introduced into his art, were in Victor Plarr's eyes of minor importance compared with the measure of his humanity and the manner in which he dealt with his fellow men. He was a man who looked at life much as Charles Lamb did; the art of "window-dressing" and of "elbowing" was altogether foreign to his nature. He was a spectator who sank himself in his surroundings and watched life go by—sometimes with a wry smile. His measure of a man was not, What has he done? but, How has he lived? Victor Plarr lived to enjoy life and to make his companions in life enjoy their share to the full.

Victor Plarr was English to the core, and yet he was born in Alsace under the French flag; his father was a professor in Strasbourg University; his mother, an Englishwoman and poetess, traced her descent from an Aberdeenshire baronet, Sir Alexander Cumming. In 1870, when he was 7 years of age, his parents came to England rather than pass under the German flag. Victor was sent to school, first at St. Andrews and afterwards to Tonbridge, passing to Worcester College, Oxford, in 1882, at the age of 19. He obtained a second class in modern history in 1886, and then sought a livelihood in London. As an undergraduate at Oxford the gift of verse, which he had inherited from his mother, became manifest, and he was received by the young poets of London, who forgathered at the Rhymers' Club, with acclamation. Mr. Morley Roberts knew Victor Plarr then, and has told the writer of the great future which was prophesied for Victor Plarr as a poet—a promise which was never really fulfilled, for the world judged him finally as a minor poet. His various books of verse—his *In the Dorian Mood* (1896) and *The Tragedy of Asgard* (1905)—never made their way beyond the narrow circle of professional approval. He was journalist; he edited the fourteenth and fifteenth editions of *Men and Women of the Time*—a publication which was supplanted by the appearance of *Who's Who*. He had not the outfit which is needed to make a success of free-lance journalism. He was pensive and sentimental, and his wares were not such as the public cared to buy. He loved, not the highway of life, but its pleasanter side-paths, where a man may dally and refresh his soul as he passes along. Hence, when the opportunity offered, he gladly sought a career in the shelter of a library, King's College giving him his first post in 1890.

Even when he became a medical librarian, and had charge of one of the finest libraries of its kind in this country, his taste for by-paths still mastered him. To the *British Medical Journal* and to other professional publications he contributed many articles, some signed, most unsigned; but one and all of them deal only with the aspects of medicine which interested him—its folk-lore, its myths, its miracles, its curiosities, and its personalities. In his journalism, as in his verse, he was always an artist; he was self-detached, and looked at things as if they were far off. Like many Oxford men, he covered a sensitive, shy, retiring nature by a pose. In *Who's Who* he has described his favourite occupations as "walking," "talking," "sleep," and "pastel drawing." It is true he was an artist with pencil and crayon, and did while away hours of leisure with them; but his real favourite occupation was spent in loyal service to his College and loving devotion to his home. A. K.

THE LATE DR. WILLIAM T. HAYWARD.

AN obituary notice of Dr. W. T. Hayward, C.M.G., appeared in our issue of January 5th (p. 47). We have since received from a correspondent in North Adelaide ("A. A. L.") the following appreciation:

With the passing of Dr. W. T. Hayward the writer has to lament the loss of a friend and colleague of some forty-five years' standing, and the people of South Australia one who, starting the practice of his profession in their midst just half a century ago, rapidly acquired, and ever maintained, the confidence and esteem of a large circle of patients and friends.

When he had completed with credit four years' course of study at the Liverpool Royal Infirmary, and obtained the necessary certificates, he took a short trip across the Irish Channel in the year 1874, and presented himself before the board of examiners of the Royal College of Physicians. The registrar apparently did not deem it necessary to inquire the age of the student with the long beard, and as a result, while still a minor, he became duly licensed to practise, and almost

immediately obtained an appointment as surgeon to the Pacific Steam Navigation Company. After a couple of voyages to South America he started work as a hospital intern at Liverpool, becoming M.R.C.S. in 1875. Again he took to the sea, ultimately with the newly formed Orient Company, and he was surgeon of the *Lusitania*, the first vessel of this line to come out to Australia; on board this steamer he met his future wife, the daughter of Mr. F. R. Burden of the *Advertiser* newspaper. In October, 1878, he decided to settle in Australia, and started to practise at Riverton, a country township; in 1882 he removed to Norwood, a suburb of Adelaide, having succeeded to the practice of the late Dr. Baily. Early in his career (1875) he became a member of the British Medical Association, and in 1879 he was instrumental in helping to form in Adelaide the first Branch in Australasia. On the occasion of the accidental death of the then president (Dr. Charles Gosse), in 1885, he was chosen as his successor, and he occupied the chair again in 1910. In 1911, when the various Australian Branches were drawn together by a federal tie, he was chosen as one of the South Australian representatives, and elected the first president of the Federal Committee. Visiting England in that capacity in 1914, he attended the Annual Meeting of the Association at Aberdeen, where he was given the honorary degree of LL.D. of that University, and made a vice-president of the whole Association. His long services to the profession were recognized locally by the presentation to him, in 1920, of his portrait in oils by Mr. Webb; this speaking likeness of him at his best will some day adorn the future Hall of the Association. In 1919 the Gold Medal of the parent Association was presented to him for his distinguished services. In 1885 a vacancy at the Adelaide Hospital allowed of his appointment as honorary physician, and this office he held for many years; he was also an honorary medical officer at the Children's Hospital for a decade. On the retirement of the late Dr. W. L. Cleland he was appointed lecturer in the Medical School on materia medica and therapeutics, resigning this position in 1920. He was for twenty-five years a member of the council of the University, and for a couple of years dean of the faculty. As a clinical teacher he was sound rather than brilliant, and he had the benefit of experience rather than of modern post-graduate teaching. At the Inter-State Congress at Sydney a few years ago he was president of the Section of Medicine.

When the war broke out Dr. Hayward volunteered his services, although over 60 years of age. They were accepted, and he was sent home in August, 1915, to be officer commanding the "nth A.G.H." On arrival in London he was informed that they had never heard of this particular unit, but Sir Neville Howse found him an appropriate billet as the officer in charge of the 1st Australian General Hospital at Harefield. There he spent two years, and was rewarded with the C.M.G. and promotion to full colonel. He returned to Adelaide, but did not resume his suburban practice.

Outside his profession he did not take part in any public work. In private he was charming; a chorister in boyhood, he could play an accompaniment on the piano; as a whist or bridge player he was good, and above all, even-tempered. On a sea voyage as late as four years ago he took an active part in all deck sports; though he never learnt golf he did not disdain a game of bowls. In early life he was a crack rifle shot.

Perhaps Dr. Hayward's greatest professional distinction was the confidence placed in his judgement on all ethical matters; for nearly three decades he was the one always appealed to on these subjects. He was patient, and genial, and understanding; he could recognize the frailties of medical human nature and the allowances to be made for them, but he was the staunch champion of all straightforward dealings. He might perhaps be described as the best type of general practitioner produced by the medical education afforded in the early seventies of last century, a type now well-nigh extinct. While he fully appreciated the distinguished honours that came his way, he wore them with all modesty. He has left a widow and seven children. Three of his sons became doctors: one, Lionel, who died of phthisis in 1926, at the age of 45, earned the remarkable distinction of a hospital at Loxton on the River Murray being named after him in affectionate remembrance.

Dr. SELFE BENNETT, who died, aged 81 years, on January 13th, was the son of Dr. (afterwards Sir) Risdon Bennett of Finsbury Square, physician to St. Thomas's Hospital, and for five years President of the Royal College of Physicians of London. Henry Selfe Bennett went to St. Paul's School, then in its old quarters in St. Paul's Churchyard, and thence proceeded to Trinity Hall, Cambridge. His affection for his old school and college persisted as long as he lived. At St. Paul's he won the English poetry prize, and when the Trinity Hall boat became head of the river he celebrated the occasion in a privately printed poem. He became a student of St. Thomas's Hospital Medical School, M.R.C.S.Eng. in 1874, and M.B.Cantab. in 1875. Curiously enough, he did not obtain the licence of the College over which his father long presided. After holding a house-physicianship at St. Thomas's and a resident post at the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, Bennett settled in practice in Seymour Street, subsequently moving to Upper Berkeley Street, where he died. He was for many years medical officer to the London office of the Liverpool and London and Globe Insurance Company, until infirmity compelled his retirement on a pension. He was an active member of the Life Assurance Medical Officers' Association, to the *Transactions* of which he contributed in 1908 a paper on the statistical method in medicine, and in 1915 one on influenza. On the first-named subject he held strongly sceptical views, holding that the statistical method was unavoidably fallacious, and he believed that subtle sequelae of influenza were long enduring and often overlooked. He was a collector of prints, chiefly with a view to extra-illustration, which was his chief hobby. His extra-illustrated volumes of *The Gold Headed Cane* were much admired. Bennett was at one time a member of the Organon Club, and for many years a constant attendant at the meetings of the Casual Club, of which he was twice president, and where his facility in debate and his tendency to take up the position of Advocatus Diaboli were much appreciated. In 1917, as the result of an accident, he suffered fracture of the upper part of the shaft of the left femur. Various causes combined to make the result an unsatisfactory one, and the consequent crippling and increasing general weakness confined him to his house, and for the last two years to his bed. He bore all his troubles with stoical resignation and cheerfulness, till bronchitis and progressive congestion, probably affecting the base of the brain, released him quietly and calmly from his troubles. His wife survives him, with a son and a daughter.

Dr. FRANK MORT, whose death occurred on January 22nd at the age of 56, had been resident in Middlesbrough for almost thirty years, and was among the best-known members of the medical profession in the Cleveland district. Born in Glasgow, he received his medical education at the university there, graduating M.B., C.M. in 1895. Five years later he settled in Middlesbrough, where he remained until his death. Mr. W. S. Dickie, F.R.C.S., writes: Cleveland is poorer for the loss of Dr. Frank Mort. From the time of his coming to the district until his retirement from general practice little more than a year ago he accomplished an astonishing amount of work, though labouring all the time under a heavy burden of ill health. In recent years, notwithstanding the claims of a very large practice, he found time for special attention to cardiac diseases, in which he had always been particularly interested. By constant study, by frequent visits to important cardiological centres at home and on the Continent, by the use of the most modern cardiographic and radiological methods of investigation, he had acquired recognition throughout the Cleveland area as an authority on the subject in which, even after giving up active practice, he maintained unflagging interest. A few days before his death he expressed regret that he would be unable to deliver an address he had promised to a neighbouring Division of the British Medical Association, of which he was a loyal and active member. He took a full share in the work of the Cleveland Division and had served on several occasions on the executive committee, but although repeatedly asked to accept the office of chairman, always refused, saying that there were others better fitted for the post. Such self-effacement and modesty were characteristic of him. Always gentle, always courteous—even when the stress was greatest—always with a kindly smile and a word of comfort, always ready to respond without a murmur to an urgent call, there is little cause to wonder that his people loved him, and that to them he was not simply the doctor, but the trusted friend. As with his patients so it was in his relations with his fellows; they were never his opponents or competitors, but always his professional

brethren. He sought and found the best in everyone and in everything. Never thrusting himself forward, but always ready to help, he earned and kept the respect and esteem of his colleagues and the love of those whose privilege it was to know him intimately.

Dr. WILLIAM GRANT STEWART, who died at his home in Montreal last year at the age of 68, had been in practice in that city for forty years. He was a frequent visitor to Great Britain and had many friends among medical men here. The son of a Presbyterian minister, he received his medical education at McGill University, and after graduating M.D. in 1888 he continued his studies in Berlin, London, and Edinburgh. On his return to Canada he settled in Montreal and soon built up an extensive practice. For many years he was physician to the Western Hospital, and he also took a large part in the medical and managerial work of the Montreal Maternity Hospital and the Alexandra Hospital, among other institutions. Dr. Stewart had been a member of the teaching staff of the University of Bishop's College, where he was for some time lecturer in clinical medicine. In 1919 he was elected president of the Montreal Medico-Chirurgical Society. He was for long an enthusiastic member of the British Medical Association, and prided himself on having been present at the opening of the Association's new House in 1925. During his frequent visits to Great Britain he attended many of the Annual Meetings of the Association, including those at Manchester, Oxford, Belfast, Birmingham, Aberdeen, and Bath. Outside his profession his main interests were in music, literature, and travel. About four years ago his many activities began to tell upon him; cardiac weakness developed, and he was compelled to relinquish the greater part of his work. His death caused deep regret among his many friends and colleagues, by whom he was held in the highest esteem.

We have to record with regret the death, on January 12th, at the age of 84, of Dr. ALICE DRYSDALE VICKERY, at her home in Brighton. Dr. Vickery qualified L.R.C.P.I. in 1880, and was a member of the British Medical Association till 1925. Dr. B. Dunlop writes: Alice Drysdale Vickery, who was among the first five women to obtain a medical qualification in the British Isles, was one of the pioneers of women's progressive movements, and especially of that for birth control. In 1877 she bravely stood as a witness for Charles Bradlaugh and Mrs. Annie Besant in their famous trial for republishing Dr. Knowlton's pamphlet on family limitation. She and her husband, the late Charles R. Drysdale, M.D., then helped to found the Malthusian League, and thereafter largely devoted their lives to writing and speaking gratuitously on the birth rate question. Even when over 70 years of age she continued to attend Eugenics Society and other meetings in London at which she advocated the Neo-Malthusian point of view, and returned home on the top of a bus whatever the season. No history of the birth control movement can be written without a reference to the widely revered name of Alice Vickery, and she will also be remembered by many as a devoted wife, mother, and friend.

The following well-known foreign medical men have recently died: Dr. MAURICE LETULLE, professor of morbid anatomy in the Paris faculty of medicine and member of the Académie de Médecine, aged 75; Dr. LOUIS BROCQ, the eminent dermatologist, consulting physician to the Hôpital St. Louis, and Commander of the Legion of Honour; Dr. CHAPOY, honorary professor of the medical school of Besançon; Professor CARL POSNER, editor of the *Berliner klinische Wochenschrift* from 1889 to 1921, aged 74; Dr. LUIS BARRAQUER ROVIRATTA, a Barcelona neurologist; Dr. CHRISTOS MAIANDRINOS, professor of children's diseases at the University of Athens, aged 65; Dr. EUGENE LATREILLE, professor of morbid anatomy at Montreal University; and Dr. ANDREA AMICI, the Pope's physician, of Grenada.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary meeting of the College was held on January 31st, when the President, Sir John Rose Bradford, was in the chair.

Membership.

The following candidates were admitted to the Membership:

Eric Newmarch Allott, M.B.Oxf., Gerald Vincent Francis Doyle, M.D.Melb., Gareth Aimers Eason, L.R.C.P., Alfred Henry Gerrard, M.D.Lond., Jessie Gordon, M.D.Edin., Lazarus Hartston, M.D.Lond., Kenneth Hoani Holdgate, M.B.New Zealand, Herbert Hylton Hyland, M.B.Toronto, Simon Kelly, M.B.Manch., Michael Edward Lampard, M.B.Camb., Samson George Moore, M.D.Vict., Kenneth Beeson Noad, M.B.Sydney, Walter Gordon Chisholm Paterson, M.B.New Zealand, Robert Sturtevant Pilcher, M.B.Lond., Charles Percy Pinckney, M.B.Camb., Francis Cro-bie Roles, L.R.C.P., Cyril Dee Shapland, M.D.Lond., Bryan Buckley Sharp, M.D.Lond., Clive Henry Sippe, M.B.Sydney, Robert Stanley Steel, M.B.Sydney, Robert William Glencan Stewart, M.B.R.U.I., Warrington Yorke, M.D. Liverp., Janet Dorothea Ernestine Young, M.D.Lausanne.

Licences.

Licences were granted to the following 149 candidates, who had passed the necessary examinations of the Conjoint Board and conformed to the by-laws and regulations of the College:

H. H. Aitchison, G. G. Allan, *Lucy E. Arthur, M. W. Atkinson, S. W. Barber, R. C. Bennett, H. Bernstein, G. H. Bradshaw, *Rochelle Churin, F. Clifton, G. C. Cochrane, C. E. Corrigan, C. F. Cosin, *Florence K. Costello, P. J. Cowin, D. F. L. Croft, R. Cutler, L. E. Daniel, C. J. M. Dawkins, E. M. Dimock, J. Donovan, H. A. Eason, A. M. Easton, J. A. Eddy, M. A. A. El Gammal, A. C. Elkin, G. W. Etches, T. Evans, T. C. J. Evans, A. D. Everett, T. D. Finey, W. R. Forrester-Wood, C. H. Forsyth, E. Foster, R. H. Francis, S. L. Gargye, W. S. Ghai, J. M. Gibson, P. J. E. Godard, M. W. Gonin, I. Gordon, J. T. C. Gray, D. R. Griffith, C. C. Griffiths, A. J. Groenewald, *Gwendoline E. Grove, R. G. Gwynne, M. K. Gyi, R. W. Haines, A. S. Hall, H. S. Hamlin, J. M. Harker, H. M. Harris, G. F. Harrison, F. F. Hellier, R. T. Hicks, *Louisa S. Hobbs, R. C. Holdernes, F. W. Holdsworth, G. J. Hollis, A. S. Hoseason, R. I. Hyder, C. G. Jobbins, *Margaret L. Jones, O. T. Jones, H. W. Jordan, S. E. Knolwes, L. W. A. Laukester, J. F. V. Lart, *Cesia Leben, *Florence M. Lessing, A. Levy, K. Lindberg, A. G. Lloyd, R. M. B. Lowis, *Dorothy M. Lufkin, R. Machray, J. K. Marshall, A. Mathews, S. N. Mathur, R. A. Maynard, K. G. Milad, W. B. Millar, M. V. Modi, G. Morgan, G. H. Morley, J. E. Myers, T. H. Negus, D. A. Nicoll, G. S. Nightingale, W. G. Oakley, R. I. O'Farrell, T. L. Owen, L. G. M. Page, A. J. Parer, A. F. Parker, A. R. D. Pattison, I. Preiskel, R. Purves, S. M. Rahman, A. S. Rajasingham, T. G. Reah, *Dorothy K. Reynolds, A. C. Riley, G. L. Robinson, V. C. Robinson, T. S. Rodgers, E. B. Rogers, B. Rothery, A. S. D. Russell, B. W. Rycroft, N. Sachnovics, H. R. D. Schofield, T. L. Scott, *Mary Scouloudi, D. A. Seaman, J. E. Semple, G. M. A. Shaikh, *Mary E. Sharp, J. D. Simpson, A. D. Skyrme, C. E. Soodeen, A. Southgate, B. Stanley, H. Stark, E. T. W. Starkie, G. A. Stevenson, E. C. Sugden, H. Taylor, I. Taylor, V. C. Thompson, S. A. Underwood, *Bertha D. Upton-Jones, V. C. Verbi, *Frances J. Vinter, W. E. Wainman, C. M. E. Warner, R. P. White, J. S. Whiting, *Florence Whitrow, A. G. Williams, A. W. Williams, J. D. Williams, *Beatrice M. Willmott, G. M. Willoughby, W. R. Winterton, F. G. Wood-Smith, R. G. Zaglama, E. Zimbler.

* Under the Medical Act, 1876.

Diplomas in Special Subjects.

Diplomas in the subjects indicated were granted jointly with the Royal College of Surgeons:

D.P.H.—G. M. Addison, N. T. Advani, C. L. Ahluwalia, J. S. Allan, A. N. Chopra, Marguerite E. Cliff, W. Conroy, K. St. V. Edwards, Eugene Egan, J. Egan, V. Feldman, J. Ferguson, M. T. Fernando, Barbara Finch, A. N. Ghei, Winefride M. Gibson, N. G. Hill, Katherine M. Hirst, D. P. Holmes, Amelia M. Ison, C. W. W. Jeremiah, Ellen F. Kelleher, W. H. Kelleher, L. D. Khatri, E. T. Lloyd, W. S. Martin, M. V. Merchant, P. L. Nirula, Mary O'Leary, Helen E. D. E. Ornstein, W. G. Patterson, R. F. Pinson, F. W. G. Smith, R. B. Subramanyam, R. W. C. Thambiah, D. J. Valentine, E. M. Wright.

PSYCHOLOGICAL MEDICINE.—R. W. Armstrong, Eileen A. Chennell, A. Craig, H. Hinchco, Phyllis M. Horton, D. L. McCulloch, D. Menzies, J. E. Nicole, Muriel L. M. Northcote, Eveleen J. O'Brien, J. C. Ramsay, C. E. Roachsmith.

LARYNGOLOGY AND OTOLOGY.—M. I. Ashmawi, A. Blagoff, N. M. Eadie, M. Husnain, N. H. Meacle, H. V. O'shea, H. M. Petty, S. Roy, E. C. Tamplin, W. L. Thomas.

Appointments.

Dr. C. H. J. Lockyer was elected Councillor in the place of Sir Hugh K. Anderson (deceased), Dr. Gordon Holmes was elected examiner in psychological medicine, and Dr. W. J. Fenton examiner in medicine.

The award of the Swiney prize for 1929 to Professor Sidney Smith was announced (see *British Medical Journal*, February 2nd, p. 231).

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—J. S. B. Bray, N. N. Datta, A. R. Edwards, C. F. H. Quick.

MEDICINE.—G. E. Bent, J. S. B. Bray, A. Weeks.

FORENSIC MEDICINE.—J. S. B. Bray, J. Freud, L. P. Gregory, I. Lipschitz, A. Weeks.

MIDWIFERY.—J. Freud, H. G. Edmunds, D. F. Michael.

The diploma of the Society has been granted to Messrs. G. E. Bent, J. S. B. Bray, J. Freud, and A. Weeks.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Local Government Bill.

THE House of Commons, on January 29th, again went into committee on the Local Government Bill. On Clause 86, which gives power to the Minister of Health to reduce grants to councils, if he is satisfied that a council has failed to achieve or maintain a reasonable standard of efficiency in the discharge of its functions relating to public health, Sir L. SCOTT moved an amendment to insert the words "and progress" after "efficiency." He said that the amendment would help the Minister of Health to see that a reasonable standard of progress as well as efficiency was maintained by the local authorities. The amendment, which Mr. Chamberlain accepted, was agreed to.

With a view to defining the public health services which a local authority was obliged to maintain at a reasonable standard of efficiency and progress, Mr. CHAMBERLAIN moved an amendment to insert, after the words "public health," the words "including services relating to maternity and child welfare, lunacy and mental deficiency, and the welfare of the blind." Tuberculosis and venereal disease, he explained, were recognized as being covered by the words "public health," and in order to remove any question as to the others he moved their inclusion in the term. The amendment was agreed to.

Sir L. SCOTT moved an amendment to delete from the clause the proviso that the Minister of Health, when dealing with the question of the reduction of grants, must have regard "to the standards maintained in other areas whose financial resources and other relevant circumstances are substantially similar." The words, he said, might be used to tie the hands of the Minister unduly when dealing with backward authorities. Sir KINGSLEY WOOD said that the amendment would untie the hands of the Minister for the time being altogether, and the operation of the clause would be entirely at his discretion. He could imagine a kind of Minister who might have a very different idea of the standards to be observed in putting the clause into operation. The amendment would also make the point still more difficult from the point of view of the local authorities. The amendment was withdrawn.

On a subsequent amendment by Mr. Lumley, Mr. CHAMBERLAIN said he would consider the possibility of introducing words into the clause to give an opportunity to some outside persons to make representations to the Minister as to the failure of a council to achieve or maintain a reasonable standard of efficiency in the discharge of their public health functions. Such words, however, would have to make it quite clear that the Minister was not dependent on receiving that representation before taking action. At 7.30 the guillotine fell, and Mr. Lumley's amendment was negatived. Clause 86 was added to the bill. Clauses 87 to 92 were also agreed to.

On Clause 94, which mitigates the liability of councils for temporary loans, Sir KINGSLEY WOOD moved an amendment providing that, to meet the case of the distressed areas, the rate for the repayment of loans contracted by Poor Law authorities to be transferred under the bill should be 9d. in the pound instead of 1s. The amendment was agreed to and the clause added to the bill.

Clause 99 provides that any person who, on November 12th, 1928 (the date of the introduction of the bill), shall have been an officer of a Poor Law authority, shall, as respects his office, be transferred to the new authority. Mr. HAYDAY moved an amendment to allow officers appointed after the date of the introduction of the bill to be transferred. He said that an obvious injustice to recently appointed officers would be done if the clause remained as at present. In view of the long periods of distress, and the epidemics of disease which had taken place, quite a number of officers might have been appointed since November 12th, 1928. Sir KINGSLEY WOOD said that it would be generally agreed that a man appointed to a Poor Law office after the introduction of the bill, and therefore aware of the provisions affecting his office, was not entitled to compensation for its loss. The amendment was rejected.

Under the guillotine the clause was added to the bill, as were Clauses 100 to 110 inclusive. Of these clauses, 103 provides for compensation to existing officers, and 104 for superannuation of transferred Poor Law officers.

On January 30th Sir KINGSLEY WOOD moved a new clause declaring that:

"Upon application being made to the Minister by the council of any county or county borough requesting that the contributions of the council towards the expenses of any voluntary association having as its object the promotion of public health services (including services relating to maternity and child welfare, lunacy and mental deficiency, and the welfare of the blind) may be paid directly to the association out of the amount payable as the general Exchequer grant of the council, the Minister may pay such contributions accordingly, and any sums so paid shall be deemed to have been paid as part of that grant."

He said this clause was introduced to meet the criticism that a voluntary association covering the whole of the country would be obliged to collect small sums from many counties and county boroughs. This clause empowered the Minister, if the counties and county boroughs concerned made application to him, to make one payment on behalf of the councils to the association concerned, out of the sums payable as the general Exchequer grant. Answering Mr. Kelly, Sir Kingsley added that the phrase "public health services" covered societies particularly concerned with propaganda against venereal disease. There was no doubt the association to which Mr. Kelly had referred would be able to take advantage of this bill.

Mr. LONGBOTTOM said that, because the Blind Persons Act, 1920, was not compulsory, many local authorities were shelving their responsibility and were leaving to voluntary associations a great deal of the welfare work for the blind. Did this clause prevent a council asking the Minister of Health to pay to societies for the welfare of the blind a certain sum per annum, so that the local authority escaped from its obligation? Sir KINGSLEY WOOD said the clause did not deal with that point. He pointed out that the Minister, under Clause 86, had power to see that local authorities maintained a reasonable standard of efficiency and progress. In considering that question he would also consider the work of the voluntary associations and whether by means of both a reasonable efficiency and progress was maintained.

Dr. VERNON DAVIES asked whether it was necessary for the county to make application to the Minister every year, or whether they could do so for a fixed period, or till notice of cancellation. Sir KINGSLEY WOOD said he would consider what was the best arrangement. When the Act came into operation the Minister proposed to address a general communication to local authorities regarding it, and would direct attention to this clause. In the interval the Ministry would consult the local authorities on the most suitable arrangement. Dr. Vernon Davies could rest assured that the Ministry would regard the best interests of the work.

The clause was then added to the bill without opposition.

Sir KINGSLEY WOOD moved another new clause declaring that a person who had become an inmate of a Poor Law institution for medical or surgical treatment should not, while requiring such treatment, be disqualified on that ground from receiving an old age pension. The clause was added to the bill.

The following new clause was also moved by Sir KINGSLEY WOOD:

As from the appointed day the following provisions shall have effect with respect to functions relating to infant life protection and vaccination formerly discharged by Poor Law authorities: (*a*) Functions under Part I of the Children Act, 1908, shall, elsewhere than in the county of London, be discharged by the councils of counties and county boroughs as functions under the Maternity and Child Welfare Act, 1918, except that where the council of a district have established a maternity and child welfare committee the said functions shall, in that district, be discharged by the council of the district and not by the county council; and (*b*) Functions relating to vaccination shall be discharged by the councils of counties and county boroughs as functions relating to public health.

Sir Kingsley Wood said this new clause was to ensure that the functions in regard to infant life protection and vaccination were imposed on the appropriate authorities and exercised by the appropriate committees of those authorities. At present these functions were discharged by boards of guardians under Part I of the Children Act, 1908, and the Vaccination Act. In the absence of special provisions they might be transferred to county and county borough councils on the appointed day, and so the Ministry proposed that the exercise of these functions should in all cases be undertaken by the maternity and child welfare authorities. It would be satisfactory to give the work to the authorities which employed health visitors, the bulk of whose work related to children under 5 years. It was unnecessary to make special provision for London, since the London County Council and the City Corporation were authorities under Part I of the Children Act, and Clause 52 of this Local Government Bill gave power to the London County Council to transfer functions to the metropolitan borough councils, subject to application to the Minister. As regards vaccination, paragraph (*b*) of the new clause would secure that functions relating to vaccination should be discharged by county and county borough councils as public health functions, and that all matters relating thereto were referred to the health committees, instead of to the public assistance committees. Clause 15 (*f*) provided that vaccination work in London should be transferred to the Common Council of the City and to the metropolitan borough councils instead of to the London County Council. This was in accordance with the wishes of those councils. He thought the clause guaranteed the efficiency of the work in future.

Mr. GROVES said he could support the Minister for the first time in his life. Experience had proved that vaccination did not prevent small-pox, and the step of handing over its enforcement to authorities composed of intelligent men and women would conduce to suppress it. So far as his own borough was concerned, he gave an assurance that they would refuse to impose this fallacy upon the people to satisfy the medical profession.

The clause was added to the bill.

When discussion was resumed on January 31st, Sir KINGSLEY WOOD moved to insert a provision that—

(*b*) Any grants paid or payable in respect of the standard year to the King Edward the Seventh Welsh National Memorial Association for the purposes of sanatoriums shall be treated as if they had been included among the amounts paid or payable out of the discontinued grants; and (*c*) The area for which a voluntary association acts shall be determined by the Minister.

He said these grants included grants in respect of certain capital expenditure. The second part of the amendment was to make clear that in appropriate cases a voluntary association should, for the ascertainment of grants, be deemed to be in one area only.

The amendment was accepted without discussion, and the committee stage ended on February 1st.

Compulsory Closing of Hairdressers' and Barbers' Shops.

A standing committee of the House of Commons, on January 31st, considered and ordered for report to the House, with amendments, the bill which provides for the compulsory closing of hairdressers' and barbers' shops on Sunday. Mr. J. STEWART, the promoter, stated that for reasons of health the bill was desirable. Sir V. HENDERSON (Under Secretary for the Home Office) gave benevolent support to the measure. He explained that hairdressers were not subject to the Sunday Observance Act passed in Charles II's reign. By a decision of the court some twenty-nine years ago, it was held that a barber was not a tradesman. The basis of the argument was that in the days when the original Act was passed a barber was not only a barber, but in many cases a surgeon also, and therefore followed a profession. Consequently it was perfectly legal for him to open on Sundays.

A clause permitting Jewish barbers to close on Saturday instead of Sunday was agreed to, as was another permitting a hairdresser or barber at any time to attend any sick person, either at his residence or elsewhere, for the purposes of that business. Captain CROOKSHANK asked if there was any legal definition of the word "sick." It was a very wide word. If it were necessary to have a medical certificate that a man was sick they would get into a mess. Sir V. HENDERSON said there was no legal definition. The word "sick" covered cases of illness where a person either went to a doctor who considered it necessary that he should be shaved, as was sometimes the case, or cases in which a person was old and infirm, or was confined to the house and unable to help himself, either in regard to cutting hair or shaving. It would be difficult to get a legal definition, and in these matters they must allow for common sense, but before the report stage he would examine what the clause was intended to mean and see if it was possible to introduce words which would make it stronger from the legal point of view. Lieut.-Colonel MOORE moved an amendment to include a disabled person; and Sir V. HENDERSON suggested "sick, infirm, or disabled." There was, he said, a definition of "disabled" in connexion with pensions. The clause was accordingly amended to provide that hairdressers and barbers might attend sick, infirm, and disabled persons, and was then agreed to.

Bills.

A Shops (Hours of Employment) Bill to limit the hours of shop workers, which was introduced by Mr. TAYLOR, was read a first time by the House of Commons on January 30th.

The Coroners Bill, which was introduced by Mr. MORRIS on January 30th and read a first time, proposes to amend the law on inquests in cases where a charge of murder or manslaughter against a person is dismissed by the magistrates while the inquest into the same fatality stands adjourned.

In the House of Lords, on January 29th, the Protection of Animals (Amendment) Bill passed through its committee stage.

In the House of Lords, on February 5th, the Protection of Animals (Amendment) Bill was considered on the report stage.

Enlarged Tonsils: Prosecution for Failing to Provide Medical Aid.—On February 4th Lord E. PERCY told Mr. Viant that he had seen a press report of a prosecution recently initiated by the Wolverhampton education authority against Ernest Henry Gwinnett for alleged cruelty to his daughter, aged 6, by failing to provide adequate medical aid in the matter of enlarged tonsils. He understood that it was stated on behalf of the local education authority that it was not their intention to force an operation on the child, and that all they required was that some treatment should be applied which would be as effective as an operation in curing the condition. He had no information as to the expenditure, if any, incurred by the local education authority in connexion with the proceedings.

Silicosis.—In reply to Mr. Kelly, on February 5th, Sir W. JOYNSON-HICKS said that silicosis was not notifiable, and the only figures on cases of disablement from the disease which he could give were those dealt with under the Refractories Industries Scheme. In 1928 these included 27 cases of partial and 5 cases of total disablement, and 4 deaths. In addition, there were 3 deaths of workmen who had previously been in receipt of compensation. Replying to Mr. Rennie Smith, Sir W. Joynson-Hicks said that a report had been published by the Stationery Office of a medical inquiry recently carried out for the Home Office and Mines Department into the occurrence of silicosis in the sandstone industry. The chief areas concerned were the West Riding of Yorkshire, Lancashire, North Derbyshire, and Durham and Northumberland. It was impossible to give accurate figures of the number of workmen affected, but it was estimated that the figure would not be smaller than 11,000.

Asbestosis among Women.—On February 4th Sir W. JOYNSON-HICKS told Mr. W. Thorne that the senior medical inspector of factories had reported that he was aware of cases of so-called asbestosis of the lungs among women. The effects of asbestos dust were already the subject of a comprehensive inquiry by the medical inspectors, which was being pushed forward as rapidly as possible. As soon as the results of this inquiry were available the question of applying the Workmen's Compensation Act would be considered.

Insurance Companies and National Insurance.—Mr. CHURCHILL told Mr. Shinwell, on February 5th, that he had seen in a weekly journal a suggestion that he was considering an arrangement with insurance companies for handing over control of the national health scheme. He had given a denial to it in answering a supplementary question by Mr. Clynes on January 31st. He was glad to have the present opportunity of repeating the denial. The story was quite untrue. No such project had ever been brought before him or considered by him or any of his advisers.

Ailments of Workers in Artificial Silk.—Sir W. JOYNSON-HICKS, replying on February 4th to Mr. Kelly, said the only two specific ailments which had so far been brought to his notice in the artificial silk industry were conjunctivitis of the eyes and sores on the hands, which were sometimes caused by acid. There did not appear to be any sufficient grounds for scheduling conjunctivitis. Compensation was not payable under the Workmen's Compensation Act unless the worker was disabled for at least three days, and he was advised that even the severer cases of this affection did not as a rule disable the workman for more than one or two days. More prolonged disablement had been due to actual splashes of the acid into the eye, which would constitute an accident within the meaning of the Act. The sores on the hands would appear to be scheduled under the Act as dermatitis or ulceration of the skin produced by dust or liquids, but these sores, if treated promptly, should not incapacitate the workman. The number of cases of injury in this industry was not available.

Influenza in Glasgow.—On February 5th Sir JOHN GILMOUR told Mr. Buchanan that he was aware that there was at present an epidemic of influenza in Glasgow, and a regrettably high general death rate. There was an exceptionally high incidence of acute pneumonia, both primary and influenzal. The Department of Health were in continuous touch with the Public Health Department of Glasgow and were aware of the extent and efficiency of the measures taken in co-operation with the Poor Law and voluntary hospitals to provide hospital treatment and nursing and medical care in the home. Notwithstanding the notification of nearly 1,200 new cases of pneumonia in the week ended January 31st, the waiting list had been cleared and the epidemic, it was believed, had passed the peak. Research into the causation of influenza, its spread in epidemic form, its pathology, and its remedy was being pursued by workers in this and in other countries, and the present outbreak was being watched and studied.

Small-pox.—Mr. CHAMBERLAIN told Mr. Groves, on January 31st, that in the twenty-six weeks ended December 29th, 1928, there were 3,765 notifications of small-pox in England and Wales. In the six months ended December 31st, 1928, three deaths were classed as due to small-pox. For the whole of 1928 the corresponding figure was 53, of which 4 were infants of one month or less, and 31 were of ages ranging from 62 to 89. On February 1st Mr. Chamberlain announced that seven death certificates were received during 1927 in which the word vaccination or vaccinia appeared, and twenty-four during 1928. In 1928 ten of the deaths to which these certificates referred were of infants under 1 year. The figures for 1928 were provisional. He had been told of 16 cases in 1927 and 14 in 1928 in which vaccination had been done within a month of death. Earl WINTERTON, on February 4th, stated that according to the weekly returns furnished by the Government of India the number of deaths from small-pox in British India from January 1st to December 15th, 1928, was 36,184.

Supply of Radium.—Mr. CHAMBERLAIN, in an answer on January 31st to Mr. Robert Morrison, said he had no means of obtaining full information as to the quantity of unused radium in this country nor of its owners. Certain supplies of radium were in the hands of voluntary institutions and private persons. Mr. MORRISON further asked whether, in view of the difficulties caused by local authorities and hospitals trying to buy radium, Mr. Chamberlain would take action so that these bodies should not compete against each other for it. Mr. CHAMBERLAIN replied that the question was under consideration by a special committee, whose report he expected shortly.

Heroin and Opium Statistics.—Answering Mr. Cecil Wilson, on January 30th, Sir W. JOYNSON-HICKS said that the total quantity of heroin seized and brought to this country to date from 1924 was 38,549 oz. It was all disposed of to persons licensed under the Acts, as was 734 kilograms seized at Hong-Kong in 1924, to which reference had been made in a document recently presented to the Opium Advisory Committee of the League of Nations at Geneva. Mr. AMERY, in a reply to Mr. Cecil Wilson, on June 30th, gave the following figures for the consumption of Government opium in Hong-Kong per head of the estimated Chinese population: 1923, 0.51 oz.; 1924, 0.47 oz.; 1925, 0.31 oz.; 1926, 0.26 oz.; 1927, 0.39 oz.

Information concerning Birth Control.—On January 29th Mr. CHAMBERLAIN told Mr. Thurtle that resolutions in favour of the giving of birth control information at maternity and child welfare centres had been received from 37 local authorities and from 74 other organizations.

[The report of the debate on the committee stage of the Local Government (Scotland) Bill will be published next week.]

Medical News.

MR. H. A. T. FAIRBANK, orthopaedic surgeon to King's College Hospital, will deliver the Lady Jones Lecture in orthopaedic surgery, in the Medical Building of the University of Liverpool, on Thursday, February 28th, at 4 p.m. The lecture, which is open to members of the medical profession, will be on congenital dislocation of the hip, with special reference to anatomy.

THE Sections of Psychiatry and Neurology of the Royal Society of Medicine will hold a special discussion on the prognosis and treatment of general paralysis of the insane on Tuesday and Thursday, February 12th and 14th, at 8.30 p.m. The openers will be Dr. W. H. B. Stoddart and Sir James Purves-Stewart.

AT the quarterly meeting of the Royal Medico-Psychological Association, to be held at the British Medical Association House, Tavistock Square, W.C., on Thursday, February 14th, at 2.30 p.m., the discussion on certain points raised in papers on general paralysis read at the annual meeting by Drs. J. Brander and J. F. Smyth will be resumed.

A CONFERENCE on industrial canteen management will be held at the Hotel Victoria, Northumberland Avenue, London, on Thursday and Friday, February 14th and 15th. In the mornings short papers will be read by experts on various aspects of economical working, and in the afternoons visits will be made to canteens of special interest in the London area. Mr. J. R. Clynes, M.P., will be the guest at luncheon on the second day. The conference has been organized by the Industrial Welfare Society, 51, Palace Street, S.W.1, when further particulars and tickets (price 25s., including luncheons) may be obtained.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that on Monday, February 11th, Mr. Andrew Wyllie will lecture on The difficulties experienced in the diagnosis of laryngeal diseases, at 5 p.m., and on the following Thursday, at 4.30 p.m., Dr. Gerald Slot will lecture on calcium therapy; both lectures are free, and both will be given at the Medical Society of London, 11, Chandos Street, W.1. A clinical demonstration in gynaecology will be given by Mr. Aubrey Goodwin, at 2.30 p.m., in the Out-patient Department of the Prince of Wales's General Hospital, Tottenham, on Monday, February 11th. Demonstrations will also be given by Dr. J. E. M. Wigley—at St. John's Hospital for Diseases of the Skin, Leicester Square, at 6 p.m., on Tuesday, February 12th—and by Dr. Dankes (on a consideration of various types of ulceration met with in the stomach and intestines), at the Wellcome Museum of Medical Science, 33, Gordon Street, W.C.1, at 4 p.m., on Wednesday, February 13th. These demonstrations are open to the medical profession without fee. Beginning on February 11th, are a two weeks' course in gynaecology, at the Chelsea Hospital for Women, and a four weeks' clinical course at St. John's Hospital, Leicester Square. There will be an intensive course at the Brompton Hospital, from February 25th to March 2nd, and a comprehensive morning course, limited in numbers, at the Hospital for Sick Children, from February 25th to March 9th. Copies of all syllabuses and information regarding the general course may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE Minister of Health recently discussed with deputations representing the Poor Law officers' organizations and the Poor Law section of the National Union of General and Municipal Workers questions relating to the provisions in the Local Government Bill with regard to compensation and superannuation of transferred officers. A substantial measure of agreement was reached, and the Minister promised further consideration of certain other points which were raised.

THE Joint Advisory Committee on River Pollution appointed by the Minister of Health and the Minister of Agriculture and Fisheries to consider the position with regard to the pollution of rivers and streams, and any legislative, administrative, or other measures which appear to be desirable for reducing such pollution, met on January 30th at the Ministry of Health to consider its programme for the immediate future. The committee agreed to devote its next inquiry to the question of the reception of trade and manufacturing wastes into the sewers of local authorities.

DR. S. J. GILFILLAN, medical superintendent of Colney Hatch Mental Hospital, has submitted his resignation, as from April next, on reaching the age of 60 years. He has completed over thirty-one years' service in the London mental hospitals, during more than seventeen years of which he has held his present position.

IN 1928 the number of student registrations in the various French medical faculties, including Strasbourg and Algiers, was 2,991, as compared with 1,349 in 1922.

THE Oxford University Press announces for early publication *Science and Personality*, by Dr. William Brown, Wilde Reader in Mental Philosophy at Oxford; this work contains the Terry Lectures on "Religion in the light of science and philosophy," delivered at Yale by Dr. Brown.

THE report of the Department of Scientific and Industrial Research for the year 1927-28 has now been published by H.M. Stationery Office at the price of 4s. net., postage extra.

THE last annual report of the Institute for Medical Research, Kuala Lumpur, for 1927, refers to the extension of the laboratories then approaching completion. In surveying the work undertaken during that year mention is made of the plasmochin treatment of malaria, which was found effective, though the drug proved more dangerous to administer than quinine; a combination of these two remedies is being tried in subtertian infections. During 1927 the number of patients applying for antirabic treatment was 123; prophylactic inoculation of dogs proved encouraging.

AT the London South-Western Police Court, on February 2nd, Dr. Daniel Evans Powell, High Street, Tooting, who was charged, on a coroner's warrant, with causing the death of Mrs. Doris Ruth Simmons, a Streatham woman teacher, by the use of some instrument, was committed to the Central Criminal Court. He pleaded "Not guilty," and reserved his defence.

REPORTS from 38 States, the District of Columbia, and 8 Canadian provinces show that for the first six months of 1928 small-pox was not quite as prevalent in the United States as during the corresponding months of 1927. In Canada, on the other hand, there were nearly twice as many cases as during the same months of 1927, and nearly three times as many as in 1926.

THE German Society for Internal Medicine and the German Paediatric Society will hold their annual meetings at Wiesbaden from April 8th to 11th and from April 4th to 8th respectively. A conjoint meeting of the two societies will be held on April 8th to discuss the preventive inoculation and serum treatment for measles, scarlet fever, and diphtheria, introduced by F. Neufeld of Berlin, M. v. Pfaundler of Munich, H. Schottmüller of Hamburg, and U. Friedemann of Berlin. The dynamics of valvular disease of the heart and the treatment of loss of compensation in valvular disease will also be discussed by the Society for Internal Medicine, and the other subjects for discussion by the Paediatric Society will be the pathology and treatment of eczema and non-purulent encephalitis in children.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

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MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

INHALATION THERAPY.

DR. A. A. E. NEWTH (Attenborough) asks if any readers have had experience in the treatment of bronchitis and asthma by means of the Spiess-Drager or Hirth apparatus for inhalation therapy. The results of hospital treatment would be especially valuable.

TREATMENT OF ABDOMINAL PAIN IN HEPATIC CIRRHOSIS.

"G. P." asks for advice on the treatment of severe abdominal pain (presumably due to perihepatitis) in alcoholic cirrhosis of the liver. The pain is made much worse by lying down; consequently the patient seldom goes to bed. He is an advanced case, but there is no ascites, and the Wassermann reaction is negative. Apart from the general treatment of his condition, counter-irritants, heat, and numerous analgesics have been tried; the only drugs found to give relief were the opium preparations in large doses, and even this relief was evanescent.

TREATMENT OF MYXOEDEMA.

"W. R." would be grateful for any suggestions for the treatment of a married woman, aged 40, who had hysterectomy performed seventeen years ago, and has had typical myxoedema for at least nine years. This has in the past responded well to thyroid extract, but now even small doses cause anginal pains which persist for some time after it is discontinued. The blood pressure and urine are normal. The heart also, so far as physical examination can determine, is normal.

INCOME TAX.

Travelling Expenses.

"R. R." inquires as to whether he can deduct the expense of travelling from his residence to the institute at which he holds an appointment.

*** "R. R." points out that this expense is similar to that incurred by a medical man in visiting his patients, but unfortunately the emoluments arising from the appointment are assessable under Schedule E and the rules relating to expenses under that schedule are in some respects more stringent than those relating to Schedule D, which deals with general professional earnings. According to the decided cases, the expense of travelling between residence and place of employment are not admissible deductions, inasmuch as they are incurred prior to, and not "in the performance of," the duties of the office.

Purchase of Practice.

"H. M.," who has a private income, purchased a small practice in June, 1928; how should his return be made for 1928–29?

*** The return made before the purchase of the practice is, of course, rendered obsolete by that transaction. "H. M.'s" liability in respect of the practice will be on three-quarters of the net earnings for his first year to June 30th, 1929—or, if he prefers, he can make up his accounts as at March 31st or April 5th, 1929, and reckon the amount so arrived at as the sum liable to tax for 1928–29. The cash basis is not acceptable for such an account, and "H. M." will have to bring into his statement of receipts and expenses the value of the debts due to him and the amount of outstanding unpaid expenses at the end of the period taken. In calculating expenditure on drugs a deduction will have to be made from the total payments to cover drugs purchased but still on hand.

LETTERS, NOTES, ETC.

EXAMINATIONS AND THE GROWING CHILD.

MR. H. C. DENT, B.A. (Chairman, English Section, New Education Fellowship), writes: My attention has been drawn to your leading article of January 19th (p. 116) commenting upon Sir Michael Sadler's address to the New Education Fellowship on "Examinations." This address marked the official opening of an exhaustive inquiry into the subject of examinations by the New Education Fellowship, which will attack the subject in the main from the point of view of modern psychology, and consider the effect of preparation for external examinations upon the physical, mental, and spiritual growth of the child. We feel that the medical profession can supply us with evidence available from no other source, and I therefore crave the indulgence of your columns to broadcast an appeal to members of your profession. Our English representative is Mrs. S. Platt, who will be pleased to receive at the headquarters of the Fellowship (11, Tavistock Square, W.C.1) any information bearing upon the subject. She is due to present a preliminary report in August, but, as much information is already to hand, would prefer to receive any communications before the middle of March.

POST-VACCINAL ENCEPHALITIS: VACCINAL IMMUNITY.

DR. R. W. JAMESON (West Wickham, Kent) writes: In your issue of February 2nd your reporter's condensation of my remarks at the Epidemiological Section of the Royal Society of Medicine somewhat misrepresents my views. I did not suggest that post-vaccinal encephalitis was not even uncommon in infants, but that we have not sufficient evidence to warrant the assertion that it is less common in infants than in older children. Another remark attributed to me should be inverted: vaccinal immunity is more lasting against the trivial variola minor than against the virulent variola major, as one would expect.

ANAESTHESIA FOR TONSILLECTOMY.

DR. HEYMANN LEVIT (Johannesburg), commenting on the recent discussions on anaesthesia for tonsillectomy, writes: During the past nine months I have used an apparatus for ether anaesthesia which consists of a 1/6-h.p. motor pumping air into a bottle containing ether. The vaporized ether is conducted from the bottle by means of a tube to a Boyle's bag with valves and face-piece, the latter being used in the same way as for the administration of nitrous oxide gas. I find in the case of children that on an average five minutes' total induction is sufficient for the removal of tonsils and adenoids, whatever may be the method of operation, and that this leaves ample time to attend to haemorrhage. In the case of an adult the anaesthetic may be continued via the nose or a small tube in the corner of the mouth.

THERAPEUTIC VOMITING IN INTESTINAL OBSTRUCTION.

DR. CHARLES J. HILL AITKEN (Kilnhurst, nr. Rotherham) writes: The left inguinal hernia in an aged person became immovable and very tender. Obstruction was complete and vomiting constant. Operation was refused. I encouraged the patient to drink lots of water and to vomit (see "Therapeutic value of vomiting in intestinal obstruction," Sir Charters Symonds, *Practitioner*, March, 1923), controlling the vomiting very occasionally by morphine. For ten days her general condition remained good and then her heart failed and she died on the twelfth day.

CHEMICAL WARFARE.

AT a meeting of the Royal Sanitary Institute, held on February 1st to discuss chemical warfare and anti-gas protection, Lord Halsbury, who presided, spoke of laboratories in ten or eleven countries all engaged in intensive research on the production of more devilish gases, and the possibility of liberating hundreds of tons of gas over London from a fleet of aeroplanes in such a way that the gas would be canalized by the valley of the Thames and waft destruction from the Wandle to Barking Creek. His idea was that it was better to have some degree of panic now, when it might result in organized measures for the public safety, than to have panic on the event, when it would add to the difficulty of the situation and assist the enemy's purpose. Major F. R. Humphreys, late R.A.M.C.(T.), and R.A.F., forecasted the possible nature of the attack and the means of safety. He classified war gases as vesicants (chiefly mustard gas and the American preparation, lewisite); lung irritants, of which phosgene is an example; sensory irritants, or smokes, mostly organic compounds of arsenic-arsines, considered by many to be the most dangerous of war gases, because of the severe injury to the bronchial tubes and lungs brought about by a very small dose; lacrymators, and, finally, direct poisons of the nervous system, of which hydrocyanic acid is the chief example. He considered that mustard gas was the most likely to be employed in an early attack on London. To meet a sudden and unpreventable attack preparations must be in existence and defence ready, and he proceeded to outline such an organization. It would consist of a band of persons physically fit, trained, and equipped with gas masks and special clothing and utensils, and capable of mobilization at the shortest notice. It would work in four sections. The duty of the first section would be to look after the safety of the people in the gassed zone, either by evacuating them, or, in less dangerous parts, supervising the preparation of gastight rooms, distributing printed instructions, and the like. The second section would consist of those who had the very important and dangerous duty of clearing gas from the poisoned area; the third would arrange for the decontamination of those who had been near the gas and were a danger to themselves and their neighbours, while the fourth, which would naturally fall to the voluntary aid societies, would carry out first aid to the gassed and wounded and transport them to hospital. With regard to the sealing up of rooms, Major Humphreys said that if the people in the room kept quiet and if naked lights were not burnt, a space of about 200 cubic feet per person in a room 10 ft. high would maintain life for twelve hours. This would allow time for clearing the streets from gas and for removal of persons to a safe locality. The clearing up of the gassed area would be effected in part by natural forces—wind, rain, and sun—but supplemented by the washing down of the streets and houses, and by covering up with earth or sawdust, mixed with effective chemicals, all places where poisonous liquids had soaked in. He suggested that the education of the public in these and other defensive measures must be the work of the local authorities, who must also provide special protection for vital points, such as water supplies, docks, and food stores, as well as hospitals and first-aid shelters. Major W. Rickards Galwey, R.A.M.C., reminded the audience that in France, in the areas soaked with mustard gas, with about three million men engaged, the total mustard gas casualties were 160,000, the average death rate was only 2 per cent., and the permanent invalidity rate about the same. He added that civilians living in the gassed zone in France who took the ordinary precautions of going into their houses and shutting tightly their doors and windows very largely escaped.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 49, 50, 51, 54, 55, and 56 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 35.

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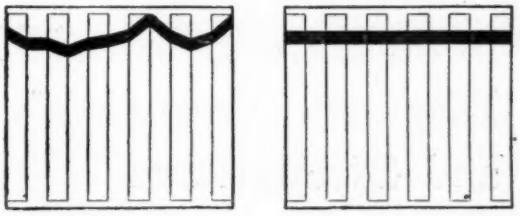

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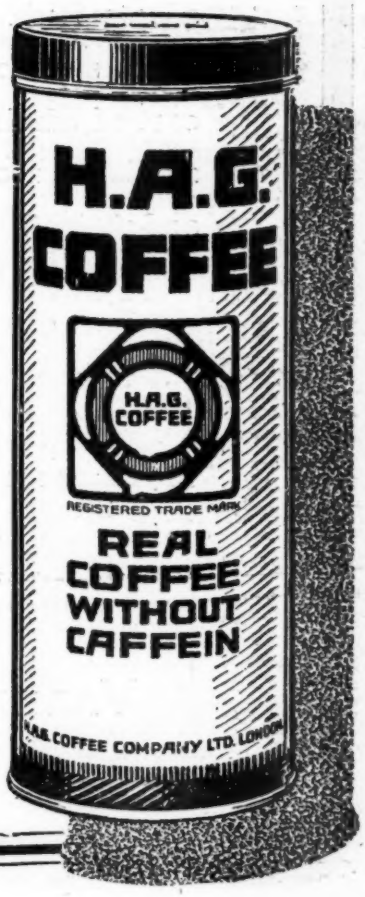

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